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THE LANCET.

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The Croonian Lectures

ON

THE CHEMICAL CORRELATION OF THE FUNCTIONS OF THE BODY.

Delivered before the Royal College of Physicians of London on June 20th, 22nd, 27th, and 29th, 1905,

BY ERNEST HENRY STARLING, M.D. LOND., F.R.S.,

FELLOW OF THE COLLEGE; JODRELL PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE, LONDON.

LECTURE III.[1]

Delivered on June 27th.

THE CHEMICAL REFLEXES OF THE ALIMENTARY TRACT.

MR. PRESIDENT AND GENTLEMEN,—It is not until the food arrives at the stomach that any use is made by the organism of the more primitive chemical method of adjusting the secretion of the digestive juices to the presence of food at various sections of the canal. We have searched in vain for evidence of the production of a secretin in the mouth or its mucous membrane as the result of the taking of food into this cavity which might serve as a stimulus to the salivary glands and the processes in this first part of the alimentary canal are so closely associated with consciousness and volition that one would expect their complete subordination to the central nervous system. In the stomach, however, the researches of Pawlow have already pointed to the possibility of some chemical mechanism being involved in the secretion of gastric juice. This observer has shown that gastric secretion begins even before the entry of food into the stomach as a result either of stimulation of the nerves of taste or even of the mental reproduction of sensations of smell and taste. This immediate secretion is therefore largely psychical and is so designated by Pawlow. The efferent channel of the nervous process is represented by the vagus nerves and Pawlow has shown that division of both vagus nerves absolutely prevents this immediate secretion of gastric juice. There can be no doubt that the psychical secretion is the more important factor in the production of gastric juice in normal circumstances. The dependence of normal digestion in the stomach upon the free play of these nervous influences is shown by the indigestion which is a familiar result of mental disturbance. Gastric secretion has, however, two stages. In the first stage there is the rapid secretion due to this psychical stimulation. Two or three hours after the taking of food into the stomach a second rise in the secretion of juice may be observed and this second rise is apparently dependent not on the taste of the food or mental condition of the animal but on the nature of the stomach contents. Pawlow has shown that this second stage occurs even when both vagus nerves are divided and the possibility is at once suggested that this stage is not due to nervous processes at all, but is determined by some chemical mechanism similar to that which we have studied in the case of the pancreas. Pawlow is apparently of opinion that the secondary secretion is due to local reflexes in the wall of the viscus, but recent experiments by Edkins have shown that it is unnecessary to invoke the aid of any such obscure mechanism.

The stomach consists functionally of two parts—namely, the fundus and the pyloric end. In the fundus of the stomach are found the glands which secrete an acid juice. In the pyloric end the glands are devoid of oxyntic cells and the mucous membrane is much more closely adherent to the subjacent muscular coats. After a full meal the food forms a mass lying in the fundus of the stomach, the pyloric portion being at first quite empty. The movements which occur from 20 to 30 minutes after the taking of food involve only the pyloric half of the stomach, the fundus gradually contracting on its mass of food, so that the portions which are already partially digested are squeezed into the pyloric mill, where thorough admixture of the food with the juices takes place. It seems therefore that such absorption as occurs in the stomach takes place solely at its pyloric end. If, then, there be a gastric secretin we should expect it to be formed in the cells of the pyloric mucous membrane under the influence of the acid or food passing to this end of the stomach from the fundus. Injection therefore of an extract made by treating pyloric mucous membrane with the products of gastric digestion should provoke a secretion of gastric juice. On such lines Edkins made his observations. Extracts of the pyloric mucous membrane were made by rubbing this up with 5 per cent. dextrin, with dextrose or maltose, or with peptone. A dog's stomach which had been previously washed out was filled up with normal salt solution under slight pressure. No absorption of salt solution takes place through the stomach, so that at the end of an hour the salt solution could be recovered unchanged. If, however, the extracts made, as just described, were injected in repeated small doses into the veins of the animal under observation the salt solution removed from the stomach at the end of an hour was found to contain hydrochloric acid as well as pepsine, showing that secretion had been excited in the stomach. Injections of dextrin, maltose, &c., by themselves were without effect, so that the secretory results must be due to the injection of some substance produced in the pyloric cells under the influence of these digestive products. This substance, which Edkins calls gastrin, but which would be better named gastric secretin, is produced only from the pyloric mucous membrane, extracts made by rubbing up digestive products with fundus mucous membrane being without influence on the gastric secretion. Edkins has shown that the substance is not destroyed by boiling, so that it evidently belongs to the same class of bodies as the pancreatic secretin described in my last lecture.

It is an old theory, as propounded by Schiff, that certain constituents of the food have a special influence in promoting the secretion of gastric juice. These substances, among which Schiff placed dextrin, were called by him peptogenous and it seems from Edkins's researches that this term is justified and that our future definition of peptogenous substances will be such bodies as can by their action on the pyloric mucous membrane give rise to the production of gastric secretin.

The movements of the pyloric mill have the effect of squirting into the first part of the duodenum, at intervals of a few minutes, a small quantity of strongly acid chyme containing the products of gastric digestion of the foodstuffs. The pylorus opens to admit the passage of a few cubic centimetres of chyme at a time and then closes and remains closed so long as the contents of the duodenum continue to be acid. As soon as the duodenal contents are neutralised the pylorus opens again and allows the propulsion of a further portion of semi-digested chyme into the duodenum. As we have seen, the effect of this acid chyme is to give rise in the cells of the mucous membrane of the first part of the intestine to secretin which, carried by the blood-vessels to the pancreas, excites a flow of strongly alkaline pancreatic juice. We may take it that ten cubic centimetres of pancreatic juice would suffice to neutralise from 15 to 20 cubic centimetres of the acid chyme. Pancreatic juice, however, although it contains many ferments, is dependent for the full display of its digestive activity on the coöperation of the other juices which are poured into the intestines at the same time—namely, the bile and the succus entericus. Pancreatic juice contains preformed both a fat-splitting ferment and a starch-splitting ferment. The activity of both these ferments is, however, doubled or trebled if bile be simultaneously present. Moreover, the fat-splitting properties of pancreatic juice are of little avail to the organism unless bile salts are also present, which by their solvent power on fatty acids and soaps and by their effect on surface tension can enable the absorption of the products of fat digestion to take place. It is essential, then, that the secretion of bile shall take place at the same time as, and in proportion to, the flow of pancreatic juice. The simultaneous and correlated flow of these two juices is effected by one and the same mechanism. Bayliss and I observed that if a cannula were introduced into the bile duct, the cystic duct having previously been ligatured, intravenous injection of secretin evoked not only the flow of pancreatic juice but also an increased flow of bile. Most extracts of the mucous membrane of the small intestine contain small traces of bile salts which are themselves cholagogue and might, therefore, be responsible for any increase in bile secretion observed as

[1] Lectures I. and II. were published in THE LANCET of August 5th (p. 339) and 12th (p. 423), 1905, respectively.

the result of the injection of ordinary extracts of intestinal mucous membrane. The presence of bile salts in our extracts was, however, guarded against, since in our experiments on the influence of secretin on bile we used for the preparation of secretin only mucous membrane which had been previously thoroughly extracted with boiling absolute alcohol and proved by special experiment to contain no trace of bile salts.

Still more important for the full display of the powers of the pancreatic juice is the coöperation of the succus entericus. It was shown in Pawlow's laboratory that the proteolytic effects of pancreatic juice obtained from a pancreatic fistula were enormously increased by the addition of a small trace of intestinal juice and it was concluded that the pancreatic juice contains, besides a small amount of trypsin, a large amount of trypsinogen. This latter 'proferment' has no action on proteids. The succus entericus contains another ferment called by Pawlow enterokinase, which has the power of converting trypsinogen into trypsin. More lately it has been shown by Délézenne, as well as by Bayliss and myself, that normal pancreatic juice as secreted contains no trypsin whatsoever. It has, indeed, a feeble proteolytic ferment which, however, is powerless to digest coagulated proteids or even solid gelatin and only slowly attacks unboiled fibrin or caseinogen. The proteolytic ferment of fresh pancreatic juice is therefore no stronger than the ferments which can be extracted from almost any tissue of the body. In the presence of succus entericus, however, the pancreatic juice speedily develops a proteolytic power more marked than that of any other proteolytic ferment we are acquainted with. It dissolves proteids, whether or not coagulated, and rapidly carries them through the stages of hydration to their end-products of amino-acids, bases, and so on, effecting in this way a thorough destruction of the proteid molecule. Certain French observers, Délézenne, Dastre, and others, have imagined that the interaction of enterokinase and trypsinogen is of the same nature as the interaction between antibody and complement, which is necessary for the destruction of red blood discs by hæmolytic sera. Experiments by Bayliss and myself have shown that this view is untenable and have confirmed Pawlow's original statement that the activating effect of succus entericus on pancreatic juice is due to the presence of a body which acts like a ferment. Our results have been fully confirmed more recently by Hekma in Holland and by Falloise in Belgium.

Enterokinase is active in such minute quantities that the presence of the minutest trace of mucous membrane in a pancreatic juice will suffice to activate the latter. It is important, however, that the activation of the proteolytic ferment should take place as speedily as possible after the entry of pancreatic juice into the intestine, and there must therefore be some means by which a flow of enterokinase containing succus entericus is evoked in direct proportion to the amount of pancreatic juice entering the intestine. That such a mechanism is present and is of a chemical nature there can be little doubt, although some discrepancy still exists between different observers as to the exact nature of the chemical mechanism. We have commenced to study the subject but our experiments are not yet far enough advanced to enable us to decide between the rival views. It is necessary to bear in mind that very considerable differences may exist between the mechanism of secretion of succus entericus in the upper and lower parts of the small intestine. It has long been known that there is a gradual increase in the absorbing powers of the intestine as we proceed from its upper to its lower end, and every worker with intestinal fistulæ has noticed an inverse ratio between the secreting powers of the different parts of this tube, secretion being most abundant in the duodenum and least abundant in the lower parts of the ileum. It is possible, therefore, that the various mechanisms described by different observers are really all involved but that their importance varies according to the part of the canal under investigation. Pawlow, as the result of experiments carried out on dogs with intestinal fistulæ, came to the conclusion that two main factors were involved in the secretion of succus entericus—namely: (1) the mechanical distension of the intestinal canal; and (2) the presence of pancreatic juice. He found that a flow of succus entericus could be more easily evoked by the introduction of a small amount of fresh pancreatic juice into the intestine than by any other means and work by his pupils seems to point to the richness of the juice in enterokinase being proportional to the amount of pancreatic juice introduced into the canal. If these observations be correct they would point to the trypsinogen, or some associated substance in the pancreatic juice, as being itself the chemical stimulant for the glands of the intestinal wall. Whether this chemical irritant acts directly or whether it reaches the follicles of Lieberkühn by way of the blood stream is as yet undetermined. Since it is the trypsinogen which needs the presence of enterokinase it would be natural to assume that this substance itself is the active stimulant of the intestinal glands.

A somewhat different view of the exciting agent for the intestinal secretion has been put forward by Délézenne. This observer, working on dogs with intestinal fistulæ at various regions of the gut, obtained practically no secretion except from the uppermost section—namely, that including the duodenum. He finds that the secretion of what we may call duodenal juice, which must be succus entericus, together with a small amount of the secretion of Brunner's glands, is excited simultaneously with the pancreatic juice and the bile by the injection of secretin into the blood stream. According to this observer, therefore, the secretion of the three coöperating juices in the upper part of the small intestine—namely, bile, pancreatic juice, and succus entericus, containing enterokinase—is brought about by one and the same mechanism—namely, the production of secretin in the intestinal mucous membrane under the influence of the entry of the gastric contents. It is, however, only in the upper part of the gut that the chief rôle of the succus entericus can be regarded as adjuvant to the pancreatic juice and it is only here that the intestinal juice contains any large quantity of enterokinase. Lower down in the gut a secretion of alkaline intestinal juice is still of importance in consequence of its content in (*a*) sodium carbonate for the neutralisation of the organic acids produced in the changes in foodstuffs; (*b*) the ferment erepsin which breaks down the products of gastric and pancreatic digestion of proteids, converting albumoses and peptones into the nitrogenous end-products, amino-acids, and nitrogenous bases; and (*c*) the ferments invertase and maltase which complete the digestion of the carbohydrates of the food. To these two ferments we must, in the case of milk-fed animals, add the ferment lactase, without the coördination of which milk sugar is incapable of undergoing assimilation.

According to Frouin the secretion of succus entericus (apparently in the middle part of the small intestine) can be evoked by the intravenous injection of succus entericus itself or by an extract of the intestinal mucous membrane. It is difficult to see the teleological significance of such a mechanism unless we assume that some constituent of the succus entericus, produced by the mechanical stimulation of the foodstuffs themselves, is absorbed into the blood and provokes the secretion of more intestinal juice lower down in the canal in preparation for the reception of the advancing mass of food.

We see then that from the entry of the food into the stomach until its passage through the ileo-cæcal valve there is a continuous chain of chemical reflexes and that the process in any section of the alimentary canal calls forth the activity of the digestive apparatus in the immediately following section. In the stomach this chemical mechanism or reflex is associated with, and probably subordinated to, a nervous reflex mechanism. In the rest of the alimentary canal the chemical mechanism seems sufficient to account for the secretion of all the digestive juices which are demanded by the food. Whether there is in addition a chain of nervous processes the evidence at present before us is not sufficient to decide, though we ourselves have been unable to obtain any satisfactory evidence of their existence. The mechanisms I have described suffice to explain in large measure the adaptation of the digestive processes to variations in the quality of the food supplied. As a rule the more indigestible the foodstuff the longer will it remain in the stomach; the greater, therefore, will be the secretion of acid gastric juice, which is the stimulus which sets free the chain of processes below the pyloric sphincter. Increased secretion of gastric juice will therefore be attended automatically with increased secretion of the other digestive juices.

There is, however, evidence of a more specific adaptation of certain of the digestive juices to the nature of the foodstuffs. Experiments carried out in Pawlow's laboratory have shown that the saliva poured into the mouth varies in consistence and other qualities according to the nature of

the food or other substances introduced into the mouth. Thus introduction of sand into a dog's mouth evokes profuse secretion of watery saliva; meat provokes secretion of thick, viscid saliva; bread of thin saliva, chiefly from the parotid gland; and so on. The same results can be evoked by showing the dog these substances—i.e., by the psychic reproduction of previous actual stimulation of peripheral sense organs.

In the stomach the psychic secretion, which is so important in inaugurating the digestion of the food, is apparently unaffected by alterations in diet, any variations which may be caused being sufficiently explained by the different digestibilities and therefore different length of stay of the foodstuffs in the stomach. In the case of the pancreas, however, according to Walther and Vasilieff, there is an accurate adaptation of the composition of the juice to the nature of the food, the dog that has been on a bread diet secreting more amylopsin, while the dog on a proteid diet secretes a larger amount of trypsin or trypsinogen. These results have been controverted by Popielski, according to whom the composition of pancreatic juice is determined solely by the strength of the stimulus which the pancreas receives and further experimental work is still required on the subject. If Walther's contentions are supported it will be interesting to determine whether the adaptation of the pancreatic activity to the nature of the food is nervous in character as imagined by Pawlow or whether the mechanism in this case also is chemical. A very interesting example of adaptation of the pancreatic activity to the nature of the food was described in 1901 by Weinland, who stated that, whereas the pancreatic juice of an ordinary adult dog contains no lactase and is therefore without effect on milk sugar, it is only necessary to feed the dog for some time, a week or more, with milk or with milk sugar in order to determine the appearance of lactase in the pancreatic juice. These experiments of Weinland have been confirmed and amplified more recently in my laboratory by Bainbridge. It is easy to judge of the presence of lactase in pancreatic juice by testing the action of this fluid on solutions of milk sugar and Bainbridge therefore took advantage of this adaptation to determine the mechanism by which it was carried out, and especially to decide the question whether the adaptation is of a nervous or of a chemical nature.

What are the limiting conditions? In the first place the reaction is absolutely specific. Unless the animal is taking lactose in its diet no lactase is ever found in the pancreas or in its secretion. The pancreas of newly born animals, for instance, is quite free from lactase, which, however, makes its appearance two or three days after birth as a result of the milk diet. The production of lactase is not a direct reaction of the pancreas to the presence of lactose in the blood, since subcutaneous or intravenous injection of lactose does not cause the appearance of lactase in the pancreas. The intestinal mucous membrane of all animals, whether on a milk diet or not, contains lactase and has an inverting action on lactose. It might be thought, therefore, that the production of lactase by the pancreas was a reaction to the presence of the products of inversion of lactose in the blood. This was found not to be the case. Subcutaneous injection of galactose for several days was not followed by any appearance of lactase in the pancreas or its juice. Nor was the appearance of lactase due to the increased production of this ferment in the mucous membrane and its escape into the blood. Injection of an extract of mucous membrane rich in lactase, repeated several days in succession, was not followed by any appearance of lactase in the pancreas. Injection of lactose into the duodenum and the subsequent injection of secretin after an interval of one hour were inefficacious in causing the appearance of lactase in the pancreatic juice. For the production of lactase in the pancreas or its juice it is therefore necessary that lactose should act on the intestinal mucous membrane for some time. The reaction is a slow one, like the adaptation in Vasilieff's experiments, and is certainly not due to the stimulation of certain nerve endings in the mucous membrane by the lactose.

Yet it was evident from the results already obtained that lactose must act on the pancreas through the mucous membrane of the intestine. An extract was therefore made from the mucous membrane of the whole small intestine of a milk-fed dog. This was filtered through muslin and about ten cubic centimetres were injected subcutaneously into a biscuit-fed dog once a day for three days. The dog was then anæsthetised, a cannula was placed in its pancreatic duct, and ordinary secretin was injected. A flow of pancreatic juice was obtained and this juice was found to contain lactase. This experiment was performed eight times and in each case the juice obtained from a biscuit-fed dog which had been injected with an extract of the mucous membrane of a milk-fed dog contained lactase.

Here, then, we have some glimpse into the mechanism of the adaptation of the pancreas to the nature of the food. As the result of injection of lactose some substance which we may call x is produced in the mucous membrane of the small intestine. This substance is carried by the blood to the pancreas and there slowly gives rise to the formation of lactase, which is turned out in the juice when secretion is excited by the entry of acid chyme into the duodenum. We have no knowledge as yet as to the nature of this substance x. All we can say is that it is destroyed at a boiling temperature, since boiled extracts of the mucous membrane of milk-fed dogs do not, when subcutaneously injected, cause the appearance of any lactase in the pancreatic juice of biscuit-fed dogs.

Whether the qualitative adaptation of the juice in respect of its trypsin, amylopsin, and steapsin is carried out in a similar fashion we cannot as yet say. We hope that an investigation of the mechanism of this adaptation, which is now proceeding, may throw light not only on the factors involved but also on the nature of the substance which is formed in the mucous membrane and has this marked effect on the activity of the pancreatic cells. Involving, as it does, two distinct sets of cells this chemical adaptation to lactose is more complex than any yet investigated and shows the intimate relation which must exist between the chemical activities of very different organs of the body.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS, WITH AN ACCOUNT OF A CASE SUCCESSFULLY TREATED WITHOUT OPERATION.

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THE following is a clinical history of the case. The child, a male, slightly undersized but apparently normal in other respects, was born after a tedious and instrumental labour on June 20th, 1904. Nothing in his condition occurred during the first three weeks to comment upon; he appeared to thrive and was fed upon cow's milk and water in the ordinary proportions for a child of that age. Vomiting occurred once or twice but never in any way to cause any anxiety. Unfortunately the child was not weighed at birth. About July 14th the child started vomiting some of his meals but not enough for us to think of changing his food. On the 21st, however, he was sick six times in the 24 hours and was then put on to peptonised milk, lime-water, and dill-water in small doses, from two to four drachms every two hours, and was given a simple alkaline mixture. His weight about this time (July 23rd) was 6 pounds 12 ounces. For the next few days vomiting continued more or less frequently—on one day once and on others two or three times. Nothing was detected upon carefully examining the abdomen and we thought him to be suffering from gastritis; his bowels were constipated. Benger's food was added to his diet and was carefully given but was invariably vomited at once, and after three days' trial this was discontinued. By July 29th he had gained two ounces in weight in six days and on this day as he had not been sick at all for several hours his peptonised milk was slightly increased in quantity and he was given a teaspoonful of water every two hours. Constipation was very troublesome and was relieved by oil enemata. The following day, however, sickness commenced again and continued for several days in spite of careful dieting. "Humanised" milk was substituted for peptonised milk, being given every two hours in five-drachm quantities; this, however, was most unsuccessful as he vomited 12 times within a few hours of commencing it. Valentine's meat juice

in small doses, white of egg, peptonised milk and hot water were all tried but were immediately returned. His condition by now, August 5th, was very grave; his pulse was 140, his temperature was subnormal, his skin was dried up and shrivelled, his extremities were cold and bluish, and the child was wasted to an extreme degree. The tongue was very dry and brown and the bowels were very constipated. He was much too ill to be taken out of his cot and was kept wrapped up in cotton wool. The vomit was always devoid of bile, containing curdled milk and mucus; at times it was intensely acid and sour smelling. Vomiting followed practically immediately the introduction of anything into the mouth—at times being forced out on to the bed as if from a pump. It was never large in amount, unless perhaps it had ceased for a few hours, when everything came up that he had previously taken.

On carefully examining his abdomen the stomach appeared to be dilated and traversing it from left to right distinct waves of peristalsis could be made out following one another in rapid succession at regular and distinct intervals. These seemed to be excited by the introduction of anything into the stomach and often started at once when the abdominal wall was exposed to the air. Sometimes they could only be obtained by palpating the abdomen or flicking it slightly with the finger. They could also be felt when the hand was laid upon the stomach moving across the abdomen. We were fortunate to obtain a photograph (Fig. 1) which

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Reproduction of photograph taken in September, 1904, showing peristaltic wave.

distinctly shows this characteristic symptom. On rare occasions we saw a retrogressive wave which evidently started from the pylorus and travelled towards the cardiac end of the stomach; it was noted that it was often accompanied by vomiting. Any food that he was given was in very small quantity—from one to two drachms—and at intervals of from one and a half to two hours day and night. On August 5th he had seven or eight tonic convulsions. On the following day he had 22 and was in a state of extreme collapse, taking no nourishment by the mouth. The pulse was 118. On the 7th and 8th the convulsions were very frequent—from 22 to 24 in the 24 hours. He was now so ill that beyond keeping him warm with hot-water bottles and a teaspoonful of hot water at frequent intervals we did nothing for him. The temperature was 97° and the pulse had fallen to 67. During the next few days, as the convulsions had diminished much in frequency and severity, we again tried him upon peptonised milk and white of egg. Vomiting, however, started at once and on August 10th we commenced to give him injections of normal saline solution, about half a pint twice daily and at first doing nothing else; he retained them and was much less restless, having no convulsions and only a little sickness. By the 14th he appeared to have rallied somewhat, but was still sick three, four, and nine times during the 24 hours. He was now taking peptonised milk and water and occasionally a few drops of Valentine's meat juice and white of egg, a portion of which he certainly retained. His weight on this date was 5 pounds 12 ounces, being a loss of 1 pound 2 ounces in 14 days. He still retained the saline injections, the constipation having to be relieved by an oil or simple enema. He was taking no medicine. On August 18th his weight had further fallen, being 5 pounds 10½ ounces. The temperature was subnormal, the pulse varying from 82 to 64 during the 24 hours; there had been no further convulsions but the vomiting was as bad as ever, starting immediately anything was introduced into the stomach and occurring as often as seven, nine, 17, and 20 times during the 24 hours. At this time his local condition was much as before but we were able upon two or three occasions to define a small rounded swelling situated to the right of the umbilicus under the costal margins of about the size of a small walnut. Often, however, we were unsuccessful in demonstrating it. A wet nurse was obtained and the child was fed by means of a spoon with her milk but this was a complete failure. The weight now (August 24th) was 5 pounds 8 ounces, the temperature was subnormal, the pulse was 62, and the child looking as if he were about to die at any moment, more shrivelled up and emaciated than ever. He retained the saline injections and nothing else. We had tried a nutrient enema of peptonised milk on several occasions but it had started diarrhœa and was retained for a very short time only. We finally gave up everything except teaspoonfuls of hot water and the normal saline injections and the child remained thus for a day or two when we again commenced teaspoonfuls of peptonised milk and water, which in spite of vomiting two or three times in the day was partly retained. He seemed now, if anything, brighter and upon being weighed we found that he had gained three and three-quarter ounces in three days. The nurse on August 30th started massaging the abdomen twice daily with cod-liver oil, particular attention being paid to massage of the stomach wall towards the pylorus. On Sept. 2nd he had not been sick for two days and weighed 5 pounds 13¼ ounces. He was still taking only small quantities of peptonised milk and water and upon again trying nutrient enemata we found that with a little difficulty they were retained. We gave nothing but peptonised milk and continued this treatment for ten days during which he commenced decidedly to improve, his weight being 6 pounds 2 ounces, and except for some œdema of his feet and over one eye he co[illegible] better. On Sept. 12th we had to stop the [illegible] owing to the local irritation they ca[illegible] enabled still to continue the normal s[illegible] together with an increased amount of [illegible] mouth, given at more frequent interv[illegible] the treatment for the next four wee[illegible] had not altered much. Possibly the [illegible] tinct. We certainly were unable t[illegible] that we had previously noticed. [illegible] him to be sick more than once a [illegible] there was no vomiting. Abdomina[illegible] oil was still continued. On Oct[illegible] 6 pounds 3¼ ounces. On Oct. 5th D[illegible] interview with one of us, recommend[illegible] few grains of pulv. papain compositus [illegible] now consisted of peptonised milk and B[illegible] was practically the treatment for the nex[illegible] His weight gradually increased and the child [illegible] much fatter. The only difficulty was that of con[illegible]

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Reproduction of photograph of the same child taken in July, 1905.

which was as bad as ever, being only relieved by the oil enemata. The injections of normal saline solution were discontinued on Nov. 27th when the weight was 9 pounds 8 ounces and the child's age was just five months. During the latter part of October he had an attack of enteritis which yielded in a few days to simple treatment.

By Dec. 25th his weight was 12 pounds. He was taking now only Benger's food with a little barley water. His abdomen had much altered; the peristalsis was present only upon flicking the abdomen. There was rarely any vomiting but still obstinate constipation. On March 30th, 1905, nothing abnormal on examination could be detected. His weight was 18 pounds. On July 1st the child was as in Fig. 2, weighing 26¼ pounds and being about 12 months old. He certainly appeared to have an unusual amount of adipose tissue for a child of his age and the upper part of his abdomen looked unduly prominent. Nothing abnormal, however, could be detected. His health is excellent and his appetite is good. He never has any vomiting and has cut several teeth. Constipation, however, still remains a difficulty.

By far the majority of papers and cases that have been published concerning successful cases of congenital hypertrophic stenosis of the pylorus have been written with the idea of showing the advantages of early operative interference, notably the papers by Wachenheim,[1] Cautley and Dent,[2] Nicoll,[3] Thomson,[4] Stiles,[5] and others. It has occurred to us that the somewhat detailed account of the history of the above case might prove sufficiently interesting for publication in that the child's recovery was entirely due to careful nursing and dieting. The infant, who is the son of one of us, had the advantage of being continuously under medical observation and during the whole of his illness was under the care of his mother and an exceptionally capable trained nurse, to both of whom the credit of the child's recovery is due. The question of operative interference was frequently discussed during the earlier stages of the child's condition but was abandoned owing to his apparently hopeless condition. We had noticed, too, as the child improved, that two cases had been carefully reported by Batten[6] and Gardner[7] in which recovery took place after careful dieting, the patient in the former case, however, fortunately dying later from an attack of broncho-[illegible]onia. Recoveries have also been reported as [illegible]aken place without operation by Ashby,[8] G. F. Still,[9] [illegible]Goodhart.[10]

[illegible]—The causation of this condition is still un-[illegible] chief theories are the following: 1. That the [illegible]due to a primary hyperplasia of the muscular [illegible]yloric end of the stomach, an overgrowth due [illegible] development (Dent and Cautley[11]). 2. That [illegible]y is secondary and results from over-exertion [illegible]this being due to functional disturbance of the [illegible]nism of the stomach and pylorus (Thomson,[12] [illegible]F. Still,[14] and others). 3. That it seems [illegible]o combine the above views so far as to believe [illegible]is some congenital hyperplasia of the pyloric [illegible], and that spasm supervenes on this, and is largely [illegible]ble for the symptoms manifested (Rolleston and [illegible]con-Atkins[15]).

Symptoms.—The period after birth at which vomiting, the first symptom, commences varies much—the average is apparently from two to three weeks. In an interesting table compiled by Wachenheim[16] of notes of 35 cases, in seven vomiting started at birth and in the others from three days up to six weeks. In de Bruyn Kop's case vomiting started at birth and the child died at seven weeks with anasarca and fluid in the abdomen.[17] In Rolleston and Crofton-Atkins's case vomiting and convulsions started 14 days after birth and death occurred seven weeks after.[18] The vomiting appears to commence at first once or twice a day and to begin with gives rise to no anxiety, until it is found that treatment and alteration in diet are ineffectual in checking it. There seems to be no difference as to whether the child is brought up on the breast or is hand-fed. When fully developed the vomiting occurs after every meal, which is often ejected from the mouth as if pumped up. The act does not appear to be associated with any pain. The vomitus is usually acid; free hydrochloric acid has been found in a few cases and in the majority of cases bile has been absent. In our case mucus, curdled milk, and sometimes a little blood were found. Where there is much dilatation of the stomach the vomitus has a frothy appearance (Still[19]). Convulsions associated with the vomiting are the result of the absorption of toxic material from the stomach. We noticed that the convulsions shortly ceased after we stopped food by the mouth; it was rarely that any retching was noted. The child's tongue and mouth became dry and parched.

Constipation is a very troublesome symptom; in several cases it alternates with diarrhœa (Wachenheim) and occasionally blood has been found in the stools.

Marasmus.—This is usually progressive: the child rapidly wastes, the skin becomes yellowish-brown, and the tissues dry up and shrivel. In our case the weight fell from 6 pounds 14 ounces to 5 pounds 12 ounces in less than 14 days.

Visible peristalsis and dilatation of the stomach.—This varies very much; in some cases it is not detected at all. When present it is a most characteristic symptom which seems at one time to be excited by simply exposing the abdominal wall in lifting the nightgown, at another by the introduction of food into the stomach or by palpating the abdomen or flicking it with a finger. In our case when it was most distinct, at the time we photographed the child, it was easily elicited by exposure of the abdomen alone; later, as the child's condition improved it could only be obtained by applying a stimulus to the abdominal wall; soon it was often not obtained then, and finally disappeared shortly after the vomiting ceased. Occasionally a peristaltic wave has been noticed returning from the pylorus to the cardiac end of the stomach and usually followed by vomiting.

Palpable tumour in the region of the pylorus.—This is not by any means always detected. It is sometimes not possible to detect the tumour more than two or three times during the illness. Still considers that its "palpability depends on the temporary condition of the muscle at the pyloric end of the stomach and, like an intussusception, it may be felt only when there is some contraction of the muscular coat occurring."[20] It is usually not recognised until after several weeks of vomiting. J. Thomson[21] noticed it as early as the twenty-third day after birth. The temperature is usually subnormal and the urine much diminished.

Treatment.—That a certain proportion of cases of congenital stenosis have recovered without any operative interference is now a generally held opinion but there is no doubt that the majority of observers are strongly in favour of the necessity of early surgical treatment. Cautley and Dent in their exhaustive paper state "that the subjects of the affection under consideration if untreated die at about the third or fourth month," and Wachenheim "considers it an error to continue medical treatment beyond two weeks unless there are very distinct signs of improvement; further than this, all treatment must be surgical as affording the only chance of life, and that not a brilliant one." It is interesting to note the method of treatment adopted in the two successful cases which were not operated upon and of which detailed accounts have been published by Gardner and Batten,[22] the child in the former case being fed upon a teaspoonful of whey every 20 minutes, with later the addition of a little malt and meat juice. In Dr. Batten's case nasal feeding, cow's milk and water (2 to 1) thre[illegible] ounces every two and a half hours, was the treatment.

In the treatment of our patient we found, after trying cow's milk, Allen and Hanburys and Benger's food, a wet nurse, and "humanised" milk, all unsuccessfully, that we had the best results from small quantities of peptonised milk at very frequent intervals, together with injections of normal saline solution half a pint twice daily. The latter method of treatment we found of the greatest service in counteracting the great drain upon the tissues the result of the excessive vomiting. We preferred this method to that of nasal feeding as the child was so exhausted. In any future case we might be called upon to treat we should certainly wash the stomach

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[1] Wachenheim: The American Journal of the Medical Sciences, April, 1905.
[2] Cautley and Dent: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 471.
[3] Nicoll; Brit. Med. Jour., 1900, vol. ii., p. 571.
[4] Thomson: Edinburgh Hospital Reports, 1896, vol. xxiv., p. 601.
[5] Stiles: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 509.
[6] Batten: THE LANCET, Dec. 2nd, 1899, p. 1511.
[7] Gardner: THE LANCET, Jan. 10th, 1903, p. 100.
[8] Ashby: Archives of Pediatrics, July, 1897.
[9] Still: Encyclopædia Medica, vol. iv., p. 89.
[10] Goodhart: Diseases of Children, seventh edition, p. 139.
[11] Loc. cit.
[12] Thomson: Brit. Med. Jour., Sept. 6th, 1902, p. 673.
[13] Ashby: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 507.
[14] Loc. cit.
[15] Rolleston and Crofton-Atkins: Brit. Med. Jour., Dec. 23th, 1900.
[16] Loc. cit.
[17] Brit. Med. Jour., vol. i., 1897. Epitome, p. 21, paragraph 103.
[18] Loc. cit.
[19] Loc. cit.
[20] Loc. cit.
[21] Thomson: Edinburgh Hospital Reports, vol. iv., p. 116.
[22] Loc. cit.

in small doses, white of egg, peptonised milk and hot water were all tried but were immediately returned. His condition by now, August 5th, was very grave; his pulse was 140, his temperature was subnormal, his skin was dried up and shrivelled, his extremities were cold and bluish, and the child was wasted to an extreme degree. The tongue was very dry and brown and the bowels were very constipated. He was much too ill to be taken out of his cot and was kept wrapped up in cotton wool. The vomit was always devoid of bile, containing curdled milk and mucus; at times it was intensely acid and sour smelling. Vomiting followed practically immediately the introduction of anything into the mouth—at times being forced out on to the bed as if from a pump. It was never large in amount, unless perhaps it had ceased for a few hours, when everything came up that he had previously taken.

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He was still taking only small quantities of peptonised milk and water and upon again trying nutrient enemata we found that with a little difficulty they were retained. We gave nothing but peptonised milk and continued this treatment for ten days during which he commenced decidedly to improve, his weight being 6 pounds 2 ounces, and except for some slight œdema of his feet and over one eye he certainly looked better. On Sept. 12th we had to stop the nutrient enemata owing to the local irritation they caused but we were enabled still to continue the normal saline injections which, together with an increased amount of peptonised milk by the mouth, given at more frequent intervals than two hours, was the treatment for the next four weeks. The local condition had not altered much. Possibly the peristalsis was not so distinct. We certainly were unable to feel the pyloric tumour that we had previously noticed. It was now unusual for him to be sick more than once a day. On several days there was no vomiting. Abdominal massage with cod-liver oil was still continued. On Oct. 1st his weight was 6 pounds 3½ ounces. On Oct. 5th Dr. Eustace Smith, in an interview with one of us, recommended the addition of a few grains of pulv. papain compositus to each meal which now consisted of peptonised milk and Benger's food. This was practically the treatment for the next three months. His weight gradually increased and the child began to look much fatter. The only difficulty was that of constipation

FIG. 2.

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which was as bad as ever, being only relieved by the oil enemata. The injections of normal saline solution were discontinued on Nov. 27th when the weight was 9 pounds 8 ounces and the child's age was just five months. During the latter part of October he had an attack of enteritis which yielded in a few days to simple treatment.

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By far the majority of papers and cases that have been published concerning successful cases of congenital hypertrophic stenosis of the pylorus have been written with the idea of showing the advantages of early operative interference, notably the papers by Wachenheim,[1] Cautley and Dent,[2] Nicoll,[3] Thomson,[4] Stiles,[5] and others. It has occurred to us that the somewhat detailed account of the history of the above case might prove sufficiently interesting for publication in that the child's recovery was entirely due to careful nursing and dieting. The infant, who is the son of one of us, had the advantage of being continuously under medical observation and during the whole of his illness was under the care of his mother and an exceptionally capable trained nurse, to both of whom the credit of the child's recovery is due. The question of operative interference was frequently discussed during the earlier stages of the child's condition but was abandoned owing to his apparently hopeless condition. We had noticed, too, as the child improved, that two cases had been carefully reported by Batten[6] and Gardner[7] in which recovery took place after careful dieting, the patient in the former case, however, unfortunately dying later from an attack of bronchopneumonia. Recoveries have also been reported as having taken place without operation by Ashby,[8] G. F. Still,[9] and J. F. Goodhart.[10]

Etiology.—The causation of this condition is still uncertain. The chief theories are the following: 1. That the condition is due to a primary hyperplasia of the muscular tissue at the pyloric end of the stomach, an overgrowth due to an error in development (Dent and Cautley[11]). 2. That the hypertrophy is secondary and results from over-exertion of the muscle, this being due to functional disturbance of the nervous mechanism of the stomach and pylorus (Thomson,[12] Ashby,[13] G. F. Still,[14] and others). 3. That it seems reasonable to combine the above views so far as to believe that there is some congenital hyperplasia of the pyloric sphincter, and that spasm supervenes on this, and is largely responsible for the symptoms manifested (Rolleston and Crofton-Atkins[15]).

Symptoms.—The period after birth at which vomiting, the first symptom, commences varies much—the average is apparently from two to three weeks. In an interesting table compiled by Wachenheim[16] of notes of 35 cases, in seven vomiting started at birth and in the others from three days up to six weeks. In de Bruyn Kop's case vomiting started at birth and the child died at seven weeks with anasarca and fluid in the abdomen.[17] In Rolleston and Crofton-Atkins's case vomiting and convulsions started 14 days after birth and death occurred seven weeks after.[18] The vomiting appears to commence at first once or twice a day and to begin with gives rise to no anxiety, until it is found that treatment and alteration in diet are ineffectual in checking it. There seems to be no difference as to whether the child is brought up on the breast or is hand-fed. When fully developed the vomiting occurs after every meal, which is often ejected from the mouth as if pumped up. The act does not appear to be associated with any pain. The vomitus is usually acid; free hydrochloric acid has been found in a few cases and in the majority of cases bile has been absent. In our case mucus, curdled milk, and sometimes a little blood were found. Where there is much dilatation of the stomach the vomitus has a frothy appearance (Still[19]). Convulsions associated with the vomiting are the result of the absorption of toxic material from the stomach. We noticed that the convulsions shortly ceased after we stopped food by the mouth; it was rarely that any retching was noted. The child's tongue and mouth became dry and parched.

Constipation is a very troublesome symptom; in several cases it alternates with diarrhœa (Wachenheim) and occasionally blood has been found in the stools.

Marasmus.—This is usually progressive: the child rapidly wastes, the skin becomes yellowish-brown, and the tissues dry up and shrivel. In our case the weight fell from 6 pounds 14 ounces to 5 pounds 12 ounces in less than 14 days.

Visible peristalsis and dilatation of the stomach.—This varies very much; in some cases it is not detected at all. When present it is a most characteristic symptom which seems at one time to be excited by simply exposing the abdominal wall in lifting the nightgown, at another by the introduction of food into the stomach or by palpating the abdomen or flicking it with a finger. In our case when it was most distinct, at the time we photographed the child, it was easily elicited by exposure of the abdomen alone; later, as the child's condition improved it could only be obtained by applying a stimulus to the abdominal wall; soon it was often not obtained then, and finally disappeared shortly after the vomiting ceased. Occasionally a peristaltic wave has been noticed returning from the pylorus to the cardiac end of the stomach and usually followed by vomiting.

Palpable tumour in the region of the pylorus.—This is not by any means always detected. It is sometimes not possible to detect the tumour more than two or three times during the illness. Still considers that its "palpability depends on the temporary condition of the muscle at the pyloric end of the stomach and, like an intussusception, it may be felt only when there is some contraction of the muscular coat occurring."[19] It is usually not recognised until after several weeks of vomiting. J. Thomson[21] noticed it as early as the twenty-third day after birth. The temperature is usually subnormal and the urine much diminished.

Treatment.—That a certain proportion of cases of congenital stenosis have recovered without any operative interference is now a generally held opinion but there is no doubt that the majority of observers are strongly in favour of the necessity of early surgical treatment. Cautley and Dent in their exhaustive paper state "that the subjects of the affection under consideration if untreated die at about the third or fourth month," and Wachenheim "considers it an error to continue medical treatment beyond two weeks unless there are very distinct signs of improvement; further than this, all treatment must be surgical as affording the only chance of life, and that not a brilliant one." It is interesting to note the method of treatment adopted in the two successful cases which were not operated upon and of which detailed accounts have been published by Gardner and Batten,[22] the child in the former case being fed upon a teaspoonful of whey every 20 minutes, with later the addition of a little malt and meat juice. In Dr. Batten's case nasal feeding, cow's milk and water (2 to 1) thre ounces every two and a half hours, was the treatment.

In the treatment of our patient we found, after trying cow's milk, Allen and Hanburys and Benger's food, a wet nurse, and "humanised" milk, all unsuccessfully, that we had the best results from small quantities of peptonised milk at very frequent intervals, together with injections of normal saline solution half a pint twice daily. The latter method of treatment we found of the greatest service in counteracting the great drain upon the tissues the result of the excessive vomiting. We preferred this method to that of nasal feeding as the child was so exhausted. In any future case we might be called upon to treat we should certainly wash the stomach

[1] Wachenheim: The American Journal of the Medical Sciences, April, 1905.
[2] Cautley and Dent: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 471.
[3] Nicoll; Brit. Med. Jour., 1900, vol. ii., p. 571.
[4] Thomson: Edinburgh Hospital Reports, 1896, vol. xxiv., p. 601.
[5] Stiles: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 509.
[6] Batten: THE LANCET, Dec. 2nd, 1899, p. 1511.
[7] Gardner: THE LANCET, Jan. 10th, 1903, p. 100.
[8] Ashby: Archives of Pediatrics, July, 1897.
[9] Still: Encyclopædia Medica, vol. iv., p. 89.
[10] Goodhart: Diseases of Children, seventh edition, p. 139.
[11] Loc. cit.
[12] Thomson: Brit. Med. Jour., Sept. 6th, 1902, p. 678.
[13] Ashby: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxvi., p. 507.
[14] Loc. cit.
[15] Rolleston and Crofton-Atkins: Brit. Med. Jour., Dec. 23th, 1900.
[16] Loc. cit.
[17] Brit. Med. Jour., vol. i., 1897. Epitome, p. 21, paragraph 103.
[18] Loc. cit.
[19] Loc. cit.
[20] Loc. cit.
[21] Thomson: Edinburgh Hospital Reports, vol. iv., p. 116.
[22] Loc. cit.

out twice daily as a routine measure. Had we done this we should no doubt have avoided the convulsions which were at one time so frequent and so severe and were evidently the result of the absorption of toxic material from a dilated stomach. Abdominal massage with cod-liver oil was resorted to in despair but from the progress of the case we cannot help thinking that a certain amount is absorbed through the skin and that a certain proportion of the success of the treatment is due to the oil so absorbed.

SUBDIAPHRAGMATIC TRANSPERITONEAL MASSAGE OF THE HEART AS A MEANS OF RESUSCITATION.

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A FEMALE patient, aged 55 years, was admitted to hospital at 11.45 A.M. on Feb. 23rd, 1905, suffering from marked laryngeal obstruction. She had travelled nearly 30 miles by carriage and train, accompanied by her medical attendant. He was surprised that she had borne the journey so well considering that she had been suffering for about three months previously from increasing dyspnœa which became very urgent at times when the patient was excited. For the past three or four days this had been severe, compelling her to acquiesce in removal to hospital. On arrival she was deeply cyanosed, inspiration was much obstructed and accompanied by a very harsh "baa-ing" noise, and expiration was also interfered with. She was quite conscious and able to reply to questions, though with difficulty. No intralaryngeal examination was made. It was thought that the dyspnœa would subside with rest in bed and orders were given to prepare for tracheotomy immediately after 1 P.M., at which time I should have finished with a clinical lecture in the neighbouring ward. At 12.53 I was told that the patient was dying. On the way to the women's ward a nurse met me saying that she was dead. On entering the ward I heard her make a feeble choky inspiratory effort. Her face was very deeply cyanosed, the large veins standing out on her face and neck. This, however, disappeared with striking rapidity. High tracheotomy was performed at once with a penknife and the lips of the tracheal wound were retracted with bent hairpins. Very little bleeding occurred from a small vein at the lower end of the wound in the neck. Artificial respiration was immediately proceeded with but only four or five spontaneous breaths were taken by the patient. There was no pulse at the wrist or cardiac impulse from the first. No cardiac sounds could be heard on auscultation. She was pallid, all reflexes had disappeared, the pupils were widely dilated, the muscles became absolutely flaccid, her lips were pale, and her eyes rapidly assumed a "glassy" look. Various methods of resuscitation, including attempted external massage of the heart, were carried out but all to no purpose.

Four or five minutes after the tracheotomy was done the abdomen was opened in the middle line immediately under the xiphoid cartilage, again with my penknife. There was no bleeding. Inserting two fingers I could easily palpate the outline of the heart between the diaphragm and the ribs in front. It was absolutely flaccid. Massage by intermittent pressure was carried out for about four minutes. The compressions were performed about the rate of 70 to 90 per minute. At the end of every 15 to 30 seconds I abated the movements in order to feel any change in the condition of the heart. At the end of the above period I felt the heart becoming firm gradually. After remaining thus for a few seconds a slight tremor was felt. Then very slowly (from 30 to 40 to the minute) the heart began to beat. The pulsations were at first very feeble. I massaged the heart for a few seconds more and then it beat gradually more strongly and quickly until at seven minutes past one it was beating at the rate of about 90, and more vigorously than since admission. The gradual return of the heart's action was indicated to those around by keeping time with my left hand, the other being used for massage. The colour was observed to return to the face and lips, the eyes lost their "glassy" stare, the pupils contracted, and pulsation of the carotids became very visible. During all this time artificial respiration had been kept up by compressing the chest. Very soon after the heart began to beat the patient took a rather deep spontaneous breath and from ten to 15 seconds later another, till by degrees respiration became normal though somewhat frequent. Slight hæmorrhage occurred from the abdominal wound which was then partially sutured and a gauze drain was inserted under the diaphragm. When I left the hospital an hour later the pulse was rather weaker and quicker but still wonderfully good, so that I was rather surprised to hear from the house surgeon that the patient died at 3 P.M., having never regained consciousness. The cause of the laryngeal obstruction was found to be a fairly large cancerous growth. Probably at least ten minutes elapsed between the times when the heart stopped beating and when it began again. Crile records the case of a man whose heart stopped for nine minutes and by the combined effect of artificial respiration, infusion of adrenalin, and manual compression of the heart the cardiac action was restored for 31 minutes.

In December, 1902, I had a similar, though not so striking, experience. I was then removing an ovarian cystoma from a woman, aged 60 years. The pedicle of the growth had just been severed when suddenly the patient became pallid, respiration ceased, and it was found that the heart had stopped. As artificial respiration produced no effect I thrust my hand up through the abdomen and found the heart in a similar condition to that in the foregoing case. In this case, however, only two or three squeezes were necessary to set the heart going again and the patient made an uneventful recovery.

Aberdeen.

A PRELIMINARY NOTE ON THE PRESENCE OF PIGMENT CONTAINING IRON IN THE THYROID GLAND.[1]

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IN the course of a histological study of the blood diseases we have on several occasions noticed the presence of pigment giving the free iron reaction in the thyroid. Unfortunately the thyroid had not been preserved in many instances, but we now propose (1) to describe the appearances in six cases; and (2) to give an account of the pigmentary changes in the thyroid gland of animals after blood destruction by hæmolytic agents.

Methods.—The gland tissue was fixed in sublimated formalin and sections were stained with eosin and methylene blue to show the general structure. To demonstrate iron we placed sections in a mixture of potassium ferrocyanide and hydrochloric acid and afterwards counter-stained them with carm-alum. In carrying out the latter method we were careful to avoid the use of metal instruments and to use glass vessels only.

1. CASE 1. *Pernicious anæmia with marked pigmentary changes in the organs.*—Each of a series of sections of the thyroid gland showed an area of about the size of a pin's head where there was a marked iron reaction. This was found to consist of a group of thyroid cells, most of which were packed with a yellow coloured pigment and were enlarged to about 20 times their normal size. Many of the neighbouring acini showed no pigmentation but here and there throughout the sections were large, irregularly shaped cells full of pigment lying in the fibrous tissue between the acini. All the pigment gave the free iron reaction.

CASE 2. *Pernicious anæmia.*—The thyroid had undergone

[1] Grants towards the expenses of this research were received from the Carnegie Trust and the Mason Fund of the laboratory.

some cystic enlargement. There were no areas showing pigmentation but there were a few connective tissue cells between the acini and a few isolated cells lying free in the acini which were packed with a golden-brown pigment giving the iron reaction.

CASE 3. *Severe secondary anæmia following gastric carcinoma.*—In this case there were small pigmented areas scattered at fairly wide intervals throughout the right and left lobes. No pigmentation was found in the isthmus. In the connective tissue between the acini were scattered groups of five or six cells, globular in shape, packed with granules of iron pigment which in many cases obscured the nucleus. Around these groups were other cells containing only two or three small rounded masses of iron pigment. In many of the acini the epithelium lining the vesicles contained a large amount of yellow pigment, especially towards the unattached border of the cells. In the colloid material in several acini were large granular masses like large degenerated cells. Some of the granules gave the iron reaction; others remained golden brown. The colloid material in a few of the acini gave a slight diffuse iron reaction. The pigment in the epithelium of the acini was always more abundant in the case of the smaller vesicles and in this position a smaller proportion of the pigment gave the iron reaction than in the other situations. It was noticed that the colloid material in these small vesicles stained a red colour with eosin and methylene blue, while the colloid in the large vesicles not showing iron was stained blue.

CASE 4. *Medullary leucocythæmia.*—In a small area there was a mass of cellular tissue consisting of ordinary thyroid cells and numerous cells of large size containing iron pigment. Almost throughout the whole gland the interacinous fibrous tissue showed large, irregularly shaped cells full of pigment which gave a brilliant iron reaction.

CASE 5. *Lymphatic leukæmia.*—There were no aggregations of pigmented cells but in epithelial cells lining the acini and in connective tissue cells in the septa throughout the gland were granules of pigment giving the iron reaction.

CASE 6. *Lymphatic leukæmia.*—Iron pigment was found in groups of five or six thyroid cells, in the interacinous connective tissue, and in cells lying free in the acini between the epithelium and the colloid material and sometimes among the colloid.

As yet our collection of "check" material is not large, but we have failed to find the pigment in three cases of lymphatic leukæmia and in a case of death due to injury.

2. *The thyroid in experimental hæmatolysis.*—In this part of the work we were able to utilise material which was obtained in the course of a research by one of us, in collaboration with Dr. D. Noel Paton, on the relationship of the spleen to hæmatolysis. Animals had been injected with a 1 in 50 solution of phenylhydrazin in doses corresponding to three cubic centimetres for each 2000 grammes of body weight. In animals killed a week after the injection we found a marked iron reaction in the thyroid gland. For the most part, however, this reaction was due to a deposition of pigment along the fibrils of connective tissue in the capsule and septa in common with a similar deposition in fibrous tissue in the spleen, lymph glands, &c., as has been described by Heinz[2] and Noel Paton and Goodall.[3] In rabbits and cats we were unable to find any further pigmentary change. In guinea-pigs in addition to the pigmentation along the fibrils of connective tissue there was pigment in large cells lying among the colloid material. In these cells only part of the pigment gave the iron reaction. In one case sections of the parathyroid showed diffuse iron pigmentation of the connective tissue, while the cells were free from pigment. We have examined a very large number of sections of thyroid from all the common laboratory animals in a normal condition and have failed to find pigmentation. It would therefore appear that the condition is associated with an undue vulnerability of the red blood corpuscles. We would note that while iron-containing pigment has been found in the blood conditions and blood destructions described in other organs—as in the liver, the spleen, the kidney, the marrow, and hæmolymph glands—we have been unable to find any notice of its appearance in the thyroid gland. Its occurrence there is of great theoretical and possibly of practical interest.

At the present stage our findings may be summarised as follows:—1. In cases of the diseases of the blood and in animals injected with phenylhydrazin we have found pigment in the thyroid gland. The greater part of this pigment gives the free iron reaction. 2. The pigment is most commonly found in connective tissue cells between the vesicles. It is also present in small scattered areas in the epithelium lining the vesicles and may be found in cells lying free among the colloid material. 3. It is most abundant in the more cellular parts of the thyroid where the colloid vesicles are small.

[2] Heinz-Ziegler's Beiträge, Band xxix., 1901, p. 311.
[3] Paton and Goodall: Journal of Physiology, vol. xxix., 1903, p. 411.

A CASE OF MIXED-CELL LEUKÆMIA, WITH A SHORT ACCOUNT OF RECENT VIEWS ON ATYPICAL LEUKÆMIAS.

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THE following presents a short abstract of the principal points in the clinical history of the case. The patient, a man, aged 57 years, was admitted into the Western Infirmary, Glasgow, in May, 1904, and was under the care of Dr. J. Finlayson, to whom I am indebted for permission to record the case. He complained of pain and loss of power in the legs of three weeks' duration. For about six months previously, however, he had been in failing health and had complained of sweating and palpitation. By occupation he was a stevedore but had given up this work two years before, not on account of his health, however, although his weight had been decreasing for some years. He had been addicted to alcohol but had never been abroad. There was nothing of note in his family history. On examination the spleen was found greatly to be enlarged, measuring seven and a half inches vertically in the left mid-axillary line and extending forward as far as the umbilicus. The hepatic dulness measured five and three-quarter inches in the right vertical nipple-line. No enlarged glands could be made out on palpation. The lung note was clear throughout. The pulse was rapid and there was a ventricular systolic (mitral) murmur. The evening temperature rose as high as 101·6° F. Neither sugar nor albumin was present in the urine. There was no dropsy or ascites.

During his stay in hospital the patient complained principally of great pain in the thighs and knees. The superficial veins of both legs were varicose and there had been an ulcer on the right one for 30 years; but the pain seemed more severe than could be attributed to this cause (possibly due to bone absorption). Three weeks after admission there was epistaxis on two occasions; the second time it was found necessary to plug the posterior nares. Within a week after the epistaxis the patient died, having in the meantime left the hospital, so that a post-mortem examination was unfortunately not secured.

The blood was examined by me about three weeks before the patient's death. The details are as follows:—Red corpuscles, 2,480,000 per cubic millimetre; hæmoglobin, 37 per cent.; leucocytes, 98,300 per cubic millimetre. The following is a differential count of leucocytes[1] (700 cells in a heat-fixed film stained with Ehrlich's triacid fluid):—Neutrophiles, 50·8 per cent. (polymorphonuclears, 38 per cent., myelocytes and transitionals, 12·8 per cent.); eosinophiles, mostly mononuclear, 4·5 per cent.; large hyalines, 40·7 per cent.; small hyalines, 4 per cent.; mast cells, less than 0·2 per cent.; normoblasts, 17 in the course of 1450 leucocytes. The striking feature in this case is, of course, the occurrence of such a considerable proportion of large non-granular cells in a blood picture which is in other respects characteristic of a myelogenic leukæmia.

The large hyaline cells vary somewhat in size but the great majority have a diameter about one and a half times that of an ordinary polymorphonuclear leucocyte. Their protoplasm is non-granular and in heat-fixed films stained with Ehrlich's triacid fluid it appears of a pale brownish colour, the peripheral band being often more intensely stained than that around the nucleus. The nucleus

[1] A count done on a film taken a week previously gave practically the same result.

s round or slightly oval, rarely indented, and averages in diameter two-thirds of that of the cell. It is not as a rule separated from the protoplasm by a clear ring, as occurs so frequently in the case of megaloblasts. The nucleus stains of a homogeneous bluish-green colour and shows no chromatin reticulum; there are, however, often several circular or oval paler areas. In these respects the nucleus agrees with that of the neutrophile myelocytes except that the latter are not so symmetrical in contour but usually show some elongation or slight indentation. In films fixed and stained with Jenner's fluid the protoplasm shows an intensely basophile reticulum, with frequently very marked "fraying" and "budding" at the margins. In contrast with the surrounding band of dark-blue protoplasm the nucleus appears much paler and shows no chromatin reticulum or nucleoli. From these characteristics it is clear that we have to deal with cells corresponding with the classical description of the large lymphocyte and differing from the large hyaline cells normally present in the blood in small numbers. The latter do not exhibit the marked basophile reaction of their protoplasm.

In heat-fixed films stained with Ehrlich's triacid fluid the neutrophile myelocytes correspond in general characters with the large hyaline cells except that their protoplasm shows granules of the usual violet tint. In many of the myelocytes the granules are so small as merely to give the protoplasm a finely stippled appearance which is not confined to one part of the cell but is evenly diffused. With Jenner's stain fine oxyphile (neutrophile) granules are scarcely apparent in these cells and where granules can be made out the protoplasm is not so markedly basophile as in the large hyaline cells. A differential count on a film stained with Jenner's fluid, where any cell showing the faintest trace of red is taken as finely granular oxyphile, shows a smaller percentage of such cells than does an Ehrlich film of neutrophiles, while the percentage of polymorphonuclears is in both cases practically identical. Thus probably some of the myelocytes do not show granules by Jenner's method and appear as large mononuclear cells with a narrow rim of protoplasm which is not more basophile than the nucleus—the "lymphoid cells" of Wolff. Appearances indicative of mitosis are to be observed both in the myelocytes and in the large hyaline cells.

Cells containing eosinophile granules are not numerous. Although they are set down as constituting 4·5 per cent. of the leucocytes only about 0·9 per cent. could be said to conform at all closely with the types of eosinophile cell met with normally in the blood and marrow of the adult. In heat-fixed films stained with triacid fluid the granules vary greatly in size in one cell as compared with another and also in the same cell; usually the granules are smaller than normal, but a cell containing granules double the usual diameter was seen. The majority are mononuclear: perhaps 1 polymorphonuclear form occurs in 20. In the myelocyte forms the granules assume the violet (neutrophile) tint, even when from their size they are undoubtedly of the eosinophile type. In the great majority the granules are sparsely distributed through the protoplasm of cells which otherwise corresponded in every respect with the large hyaline elements; in other instances the granules are aggregated at one side of the cell. When the granules occur in such a hyaline cell in countable numbers and scarcely larger than the granules of a neutrophile polymorphonuclear leucocyte, their identity becomes open to doubt. It is only because one can trace all gradations from these to the typical eosinophile myelocyte that one can decide on their nature. With Jenner's stain only one cell containing coarse eosinophile granules was met with in the course of counting 700 leucocytes; it was polymorphonuclear. There are, however, mononuclear cells with markedly basophile protoplasm containing rounded basophile granules which show the same variations in size and distribution as are observed in the case of the eosinophile cells in films stained with triacid fluid. "Budding" of the protoplasm of these cells is frequently to be observed. Cells containing both eosinophile and basophile granules are definitely present although in very small numbers. If we count such cells with coarse basophile granules as eosinophile then the percentage is 3·5 as compared with 4·5 per cent. of eosinophiles in triacid preparations. On the other hand, if in both preparations we count only typical examples of eosinophile cells—i.e., coarsely granular eosinophile ones with Jenner and coarsely granular ones in triacid films—then the percentages are 0·15 and 0·9 respectively.

Both "wet" and heat fixed films were stained with basic dyes (polychrome, methylene blue, and carbol-thionin blue). These showed that mast cells are very scanty. The spherical granules with marked basophile reaction are not nearly so frequently to be made out here as in the Jenner films nor is their absence to be accounted for by the appearance of cells the granules of which, like the eosinophile granules normally present in the adult, appear as unstained refractile bodies (negative staining). In this connexion I may say that in some of the basophile granular cells in a film stained by Jenner's method I saw along with the markedly basophile granules others in the same cell which did not take up the eosin but were unstained. The coarse granules which do show a basophile reaction in films stained with basic dyes are not metachromatically tinted.

That these coarse basophile granules are in reality a modification of the eosinophile secretion (probably in the direction of a less mature product, as will be considered afterwards) is practically certain from the following considerations: 1. The regular contour of the granules and the absence of metachromatic tinting with basic dyes; both of which characters serve to distinguish them from mast-cell granules. 2. The characteristic way in which they are set free by the "explosion" of a cell containing them through rupture of its protoplasm in the course of spreading the film. 3. The occurrence of coarse basophile along with coarse eosinophile granules in the same cell. 4. The fact that the percentage of eosinophile cells is so small in a Jenner preparation as compared with a triacid one unless these cells containing coarse basophile granules be counted as eosinophile elements. A few cells are met with which possess small fragmented nuclei and scanty protoplasm. With triacid staining the nucleus appears dark and "pyknotic." Some of these cells possess coarse granules which appear to stain with triacid fluid, while with Jenner's stain they appear usually basophile, but sometimes they are oxyphile. These are probably to be regarded as degenerated elements.

So far as the appearances in the blood are concerned this case is undoubtedly to be classed as one of mixed cell leukæmia, since we have to deal with a great increase of colourless cells both of the granular and of the non-granular types. In addition, the large lymphocytes which are present in such numbers are elements quite as foreign to the normal adult blood as are the finely granular myelocytes. It is not necessary to suppose an affection of any other tissue beside the marrow, however, to explain such a blood picture as this case presents. If we believe that in leukæmia we have to deal with a "sarcoma of the blood" then we must be on the look-out for appearances indicative of a reversion to the embryonic type, which such a supposition would imply. There is good evidence that the blood in this case affords a marked example of such reversion. In proof of this I shall compare the appearances presented here with my observations[1] on the bone marrow of the human fœtus which accord in general with the results of Pappenheim,[2] Dominici,[4] Hirschfeld,[5] and others. In the femur marrow of the human fœtus at three and a half months and until between the fifth and sixth months the majority of the colourless cells are non-granular. They consist principally of mononuclear cells which possess a markedly basophile reticular protoplasm. With Jenner's stain the nucleus appears less basophile than the cytoplasm. It is to these undifferentiated leucoblasts that Pappenheim, Hirschfeld, and others have applied the term "lymphoid cell." At the early ages the protoplasm of these cells is more abundant and more ductile than later when they come to resemble exactly the large lymphocytes which are present in this case and which it seems reasonable to regard as a reversion to the type of the undifferentiated leucoblast. With regard to the appearance of granulations in the cells of the fœtal marrow, eosinophile myelocytes and polymorphonuclear cells in all respects similar to those present in the adult are already to be found in the marrow at three and a half months. At this age and until later dates (five months) atypical forms are present which are to be regarded as cells in the process of differentiation and young so far as granule formation is concerned. Such appearances are: (1) minute

[1] Browning: Journal of Pathology and Bacteriology, vol. x., 1905.

[2] Pappenheim: Virchow's Archiv, Band civil., p. 19, 1899.

[4] Dominici: Comptes Rendus de la Société de Biologie, tome i., p. 721, 1899.

[5] Hirschfeld: Virchow's Archiv, Band cliii., p. 335, 1898.

granules and variations in the size of granules in a cell; (2) restriction of the granules to one part of a cell, the protoplasm of the rest being markedly basophile and reticular; (3) scanty numbers of granules in a cell; (4) the assumption of the neutrophile tint by granules with triacid staining; and (5) a marked basophile reaction of the granules with basic dyes, metachromatic staining being absent, however; also the occurrence of both basophile and eosinophile granules in the same cell. All of these characters are met with in this case; but while the basophile reaction of young eosinophile granules is well known it is not often, I think, that the condition is so universal as in this instance.

The neutrophile granules make their appearance at a later date than do the eosinophiles. They are not, as a rule, present in a notable number of cells in the marrow till between the fourth and sixth months. Prior to their appearance the myelocytes and polymorphonuclear leucocytes are non-granular and even at the sixth month I have seen non-granular polymorphonuclear cells in heat-fixed films of the marrow stained by Ehrlich's method. In the adult the granular leucocytes are the products of the mitotic division and nuclear transformation of mononuclear cells bearing similar granules (myelocytes); but it is probable that in the fœtus granules may begin to be secreted for the first time in cells which have become polymorphonuclear.

With regard to the question of the origin of granular cells outside the bone marrow, I am satisfied from my observations on the thymus in the human fœtus that both eosinophile and neutrophile leucocytes arise from the mitotic division of mononuclear granular cells lying in the loose connective tissue which runs between the lobules and in which the blood-vessels course; the same holds good of the liver (eosinophile cells were seen in the perivascular tissue of the portal vein in a ten weeks' fœtus) and prior to the granular cells we must have, of course, the undifferentiated leucoblasts. The connective tissue in these situations, however, undergoes a degree of physiological thickening which must within at most a few years after birth render it so dense as to hamper any extensive process of cellular proliferation and emigration into the blood vessels so that probably long before adult age is reached the leucocyte production existing normally in these situations in the fœtus must have come to an end. It is held by Pappenheim and others that the lymphoid cell gives rise to the red corpuscles as well as to the leucocytes. Nothing in the blood of this case lends support to the idea of the interdependence of these two classes of cells.

In conclusion, there is good ground for supposing that the blood in this case presents indications of a reversion to conditions which normally exist in the marrow in fœtal life. Such is the explanation of the abnormal eosinophile forms and it is to the reversion of the granular myelocyte to the non-granular "pre-myelocyte" or "indifferentiated leucoblast" or "lymphoid" cell or to the excessive proliferation of the few such cells which normally are present in the adult marrow with the resumption of embryonic activity that this case of leukæmia owes its "mixed" characters. This view is in complete accordance with the opinions expressed by Muir on this question at the annual meeting of the British Medical Association.

A number of cases of leukæmia and allied conditions are on record in which both the granular and the non-granular cells were increased. In Wilkinson's case[6] there was a great increase in the number of leucocytes in a woman, aged 35 years, with enlarged spleen but without enlargement of the lymphatic glands. The blood showed numerous myelocytes and large lymphocytes; eosinophiles and mast cells were increased; megaloblasts and normoblasts were present. Eight days later—two days before death—the blood was lymphocythæmic with the presence of only a few myelocytes. In the case recorded by Michaelis,[7] the patient, a woman, aged 50 years, complained of weakness and breathlessness and was under observation for three months before death. The blood picture was fairly constant: red corpuscles, 3,500,000 per cubic millimetre; a few normoblasts; and leucocytes, 116,000 per cubic millimetre. Differential count: neutrophile polymorphonuclears, 16·0 per cent.; neutrophile myelocytes, 7·2 per cent.; eosinophiles, 0·4 per cent.; mast cells, 0·4 per cent.; large lymphocytes, 56·0 per cent.; and small lymphocytes, 20·0 per cent. Cell forms showing differentiation from the non-granular to the finely granular type were observed in the blood. Post mortem the spleen weighed four and a half pounds. It consisted mainly of large non-granular mononuclear cells and giant cells with scanty myelocytes; marrow, ditto; giant cells were present both in the lymph glands and the liver.

Simon's[8] patient was a man, aged 42 years, who came under observation 18 months before death, complaining of indigestion. Blood examination at first showed red corpuscles 1,350,000 per cubic millimetre, leucocytes not increased, but 6 per cent. neutrophile myelocytes; eosinophiles and mast cells were absent; normoblasts and a few megaloblasts were present. Eight months later a blood count showed red corpuscles 3,968,000 per cubic millimetre; hæmoglobin, 40 per cent.; and leucocytes, 14,000. Splenic enlargement was now perceptible and the spleen increased till it reached the umbilicus. Ulcerative stomatitis supervened before death. No necropsy was made. Blood counts showed that the number of leucocytes rose in the last week of life to 116,000, never having previously been higher than 26,000. The neutrophile polymorphonuclears varied between 17·9 and 50·7 per cent; neutrophile myelocytes between 29·1 and 53·5 per cent.; eosinophiles none; mast cells, between 0 and 1·3 per cent.; large lymphocytes, between 4·9 and 55·3 per cent.; and small lymphocytes between 0·6 and 14·3 per cent. The later counts showed, as compared with the earlier ones, a marked increase in the large lymphocytes and a diminution in the neutrophile polymorphonuclears.

Fowler's case[9]—a girl aged five years—showed about 250,000 leucocytes per cubic millimetre, of which some 50 per cent. were large non-granular cells; neutrophile myelocytes were above 12 per cent.; eosinophile polymorphonuclears and myelocytes were present and mast cells from 3 to 4·4 per cent. Among the large non-granular cells some had intensely basophile protoplasm; others slightly basophile protoplasm, which was in some instances hyaline and in others contained fine granules ranging from basophile to neutrophile in tint. These were taken to represent stages in differentiation from non-granular to granular cells. In Wolff's two cases[10]—in adults—non-granular cells constituted 78 per cent. of the leucocytes, while 17 and 5 per cent. of differentiating forms were present. In a case of chloroma reported by Klein and Steinhaus[11] the leucocytes numbered 20,000, finally 41,000 per cubic millimetre; lymphocytes rose to 66 per cent., 47 per cent. being large. Myelocytes were present in the blood throughout (from 16 to 32 per cent.). Post mortem the myelocytes constituted the greater part of the tumour masses but were not present in the spleen and glands.

The question which is raised by the occurrence of such cases as the above is whether we are dealing with a form of leukæmia in which both myeloid and lymphoid tissue are involved. The researches of Ehrlich served to separate the leukæmias into two broad classes: (1) the myeloid, in which the granular leucocytes are as a rule increased in the blood,[12] and where in addition the myelocyte forms find their way into the circulation, the proportions of the various granular forms (neutrophile, eosinophile, mast cell) presenting wide variations from the normal; and (2) the lymphoid, in which non-granular forms predominate and are usually both absolutely as well as relatively increased, the small forms predominating as a rule in the chronic and the large ones in the acute cases.

In the normal adult the seat of proliferation of the granular cells is practically restricted to the bone marrow and this appears to be absolutely the case so far as the neutrophile forms are concerned; on the other hand, non-granular cells are found to multiply in the connective tissue throughout the body as well as in the lymph glands. Thus, not merely are the granular and the non-granular cells, on the whole, distinct in their seats of origin in the adult but they subserve different functions, as is shown by the reactions of myeloid and lymphoid tissue under pathological conditions—e.g., in the infections (Muir[13]), and there is no

[6] Wilkinson: THE LANCET, June 20th, 1903, p. 1739.
[7] Michaelis: Zeitschrift für Klinische Medicin, Band xlv., p. 87, 1902.
[8] Simon: American Journal of the Medical Sciences, vol. cxxv., p. 964, 1903.
[9] Fowler: International Clinics, vol. iii., thirteenth series, p. 217, 1903.
[10] Wolff: Zeitschrift für Klinische Medicin, Band xlv., p. 385, 1902.
[11] Klein und Steinhaus: Centralblatt für Allgemeine Pathologie, Band xv., No. 2, p. 49, 1904.
[12] In cases cited by McCrae (Brit. Med. Jour., vol. i., 1900, p. 760) the number of leucocytes fell at times to normal, with or without the persistence of myelocytes.
[13] Muir: Transactions of the Pathological Society of London, vol. liii., part iii., p. 379, 1902; also Journal of Pathology and Bacteriology, vol. vii., p. 161, 1901.

evidence that the cells of the one type become transformed in o the other.

The progenitor of both the granular and the non-granular cell types in the fœtus, however, is the large mononuclear cell with non-granular basophile cytoplasm. Hence a reversion to the embryonic condition on the part either of myeloid or of lymphoid tissue will ultimately lead to the appearance of the undifferentiated leucoblast. The occurrence of these cells in unusually large numbers in the blood in a myeloid leukæmia will give rise to a mixed-cell blood picture and does not necessarily imply any participation of lymphoid tissue in the proliferative process. That these undifferentiated leucoblasts may, as in the embryo, perform the function of producing granules and thus become myelocytes is apparent from the observations of Wolff, Michaelis, and Fowler as regards neutrophiles, and as regards eosinophiles in my own case. As Hutchison[14] remarks, one would expect the reversion to the non-granular form to occur with greater ease in childhood and it is significant that very few cases of pure myeloid leukæmia have been observed in children.

It is well known that metastatic carcinomatous growths in bone may give rise to a blood picture resembling myeloid leukæmia (Kast[15]), owing to a disturbance of the myeloid tissue which may either be of the nature of a reaction or may be due to mechanical derangement. Similar disturbance of the marrow by proliferating lymphoid tissue serves to explain, as Hirschfeld[16] suggests, the small percentage of myelocytes which is occasionally found in the blood in cases of lymphatic leukæmia (Bradford and Shaw[17]). If the myelocytes appear in larger numbers, however, the blood picture will be of the mixed-cell type. Such may be the explanation of the case of Michaelis, *vide supra*, (Pappenheim[18]).

In conclusion, it may be said that until the etiological factors in the causation of leukæmias are understood it is impossible to decide whether both myeloid and lymphoid tissue may be involved at the same time, but it must be remembered that the blood picture is merely a symptom and that transient and explicable causes have produced similar conditions of the blood—e.g., in a case of acute pneumonia in a man, aged 54 years, 96,000 leucocytes, of which 86 per cent. were lymphocytes; a case of acute sepsis, 200,000 leucocytes, of which 12·2 per cent. were neutrophile myelocytes and 6 per cent. were basophiles. Recovery in both cases was accompanied by a return of the blood to normal (Houston[19]).

SUMMARY.

1. Myeloid leukæmia is due to a hyperplasia of myeloid tissue; but the unknown causative agent is irregular in its action, so that any of the various granular types may predominate or a mixed-cell blood picture may result from the reversion of many of the cells to the condition of the non-granular undifferentiated leucoblast or from the hyperplasia of such non-granular cells normally present in the marrow in small numbers. These undifferentiated leucoblasts may assume their embryonic activity and secrete granules.

2. In leukæmias a mixed-cell blood picture may be due to: (*a*) a reversion of myeloid cells to the embryonic non-granular type; and (*b*) a reaction or mechanical disturbance of myeloid tissue owing to lymphoid hyperplasia with as a result the passage of myelocytes into the circulation.

3. It is to be understood that it is left quite an open question as to whether or not myeloid and lymphoid tissue may be concomitantly affected in a way similar to what occurs in myeloid and lymphoid leukæmias respectively. If such occurred then we should have a *mixed leukæmia* in the strict sense.

Glasgow.

[14] Hutchison: Goulstonian Lectures, 1904, THE LANCET, May 7th, 14th, and 21st, 1904.
[15] Kast: Deutsches Archiv für Klinische Medicin, Band lxxvi., p. 48, 1903.
[16] Hirschfeld: Fol. Hæmatolo., No. 3, p. 50, 1904.
[17] Bradford and Shaw: Transactions of the Royal Medical and Chirurgical Society, vol. lxxxi., p. 343, 1899.
[18] Pappenheim: Zeitschrift für Klinische Medicin, Band xlvii., p. 216, 1902; also Band liii., p. 257, 1904.
[19] Houston: Brit. Med. Jour., vol. ii., p. 591, 1904.

RUSSIAN SCIENTIFIC SOCIETY'S CENTENARY.—The *Novoe Vremya* says that August 7th was the centenary of the founding of one of the oldest Russian educational societies—the Imperial Moscow Society of Experimental Natural Philosophy.

NOTES ON ABDOMINAL SURGERY BASED UPON COMPLETED RECORDS OF 744 CASES.

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A REVIEW of work in any specialty is always interesting and especially if it extends over a number of years and thus reflects the various changes which have taken place in the technique employed. To the operator himself certain points also become clearer and may perhaps be advanced with more confidence for the consideration and criticism of others.

Abdominal surgery covers a wide field. For some time it has been the fashion to limit that part of it which is only seen in women and which, indeed, depends upon their sex as a separate specialty. But there are not wanting signs that this fashion is upon the wane and that it is being realised more and more convincingly that such a limitation has no anatomical or clinical ground for justification. That any man who opens the abdomen must be prepared to deal with whatever he may find within is, one would think, self-evident, and if that is so abdominal surgery is a far more fitting term to describe the work done than mere gynæcology. The most recent works on gynæcology describe operations upon the bladder and intestine, and necessarily so, since these organs are frequently implicated in purely gynæcological diseases, such, e.g., as pyosalpinx. It cannot surely be pretended that such organs occur only in women. Two cases which have occurred in my practice amongst others may serve to illustrate and emphasise this point.

CASE 304.—In March, 1898, I was asked by my friend, Dr. G. Knapton of Manchester, to see with him a woman, aged 35 years, who complained of great pain in the left iliac fossa which had lasted 21 years, always becoming intensified at the menstrual periods. This fact had, no doubt, strongly impressed the mind of a surgeon, one who practised pure gynæcology, who had removed both her ovaries in the previous July under the belief that they were cirrhotic and therefore the cause of her suffering. Whilst convalescing and lying in bed the pain was certainly easier but it recurred as soon as she began to go about and was at the time of examination, if anything, more severe than before. She had been seen by a physician in Manchester who advised that the ligatures around the ovarian stumps should be removed, as, in his opinion, the pain was due to the inclusion of nerve fibres in their grip. Closer investigation, however, brought out certain facts. First, the pain had been present for one year before menstruation began at all. Secondly, it always started below the left lower ribs and passed downwards, shooting towards the pubes and the left leg. As long as the pain was confined to the upper region it was bearable but when it passed downwards morphine was required to relieve it. Thirdly, during the presence of the pain there was an incessant desire to micturate and she would spend a considerable time endeavouring to pass urine, which was always impossible until the pain relaxed, when a little urine would pass, the passage of which caused great pain which was now referred to the urethra. After the first passage urine would be passed again in fair quantity four or five times in half an hour. Examination (recto-bimanual) discovered a rather large calculus fixed in the lower end of the ureter. This was removed through the bladder by suprapubic cystotomy and the pain disappeared entirely.

CASE 573.—In April, 1903, I was asked by my friend, Mr. R. P. Lawson of Openshaw, to see with him a relative who had been under the care of a gynæcologist who had operated with a view to the removal of her ovaries which were believed to be diseased. Finding on opening the abdomen that both were healthy this operator had reclosed the abdomen. The patient had complained of pain in the right iliac fossa for four years. This had been of a gnawing character and passed down into the right leg; until lately it could be relieved by lying down and removing all clothing from the part; but at the time of examination it was continuous and position had no effect. The pain was accurately localised by the patient at a point slightly below McBurney's point. The attacks had been more frequent and more severe during the last 12 months. The pain was associated with

nausea but there was no vomiting. The action of the bowels was regular and did not affect the pain. There were well-marked dulness on percussion above the right Poupart's ligament and an equally distinct swelling with a crescentic upper margin, convex upwards, with the ligament as a base. The pelvis was clear and the uterus was moveable and anteflexed. On May 3rd, 1903, the appendix was removed by the usual incision and was found to be kinked. It was also adherent at its tip. The pain immediately subsided and has not since returned.

My abdominal operations number considerably over a thousand but I have only complete notes of 744 and it is upon these that I have based what remarks I propose to make and from which I have drawn illustrative cases for reproduction. The records themselves go back for nearly 20 years. This, whilst it prevents the declaration of the low mortality which is increasingly becoming possible, adds to the interest, since they supply specimens of most of the operations which have been practised and show to some extent the elaboration of the present methods. As I have not been restricted by the necessity of having to teach students certain definite procedures for the purposes of examination I have perhaps been able more easily to adapt my work and methods to any improvements as they have been introduced. But it would be clearly impossible to reproduce each case of so long a list except in such an abbreviated form as entirely to destroy any interest they may possess. I propose, therefore, to give the numbers of each class with their mortality, whilst one or two, or more, of those which appear most worthy of reproduction are given in detail.

Ovarian cystomata.—Of these I have operated upon 114. The mortality has been 7·8 per cent. This is a large mortality compared with that at present usually obtained, but all but two of these deaths occurred 15 years ago, when the technique of the operation was not so well understood. Of these two cases last mentioned one, detailed below, was that of an immense multilocular cyst, such as is very rarely seen now, adherent all over the anterior abdominal wall and to the entire under surface of the right lobe of the liver, which oozed freely after the cyst wall had been peeled off it. In the other a multilocular cyst was buried beneath densely adherent Fallopian tubes full of pus with an abscess in the uterine wall and the case should probably be rather classed as one of double pyosalpinx. The ordinary ovarian cyst now presents but little of interest to surgeons and the ease and safety of the present operation contrast vividly with that of the time of Spencer Wells, whose operations I was privileged to witness on several occasions. The case to which I have referred above is here given.

CASE 679.—The patient, aged 40 years, was sent to the Ancoats Hospital by Dr. Ursula D. Fowler of Manchester on May 4th, 1905. The patient first noticed a swelling in the abdomen four or five years ago. This caused no discomfort and the increase in size had always been gradual. Difficulty in walking and increasing dyspnœa had been noted for 12 months. The menopause occurred in 1904. She had never been tapped. On examination on May 6th the abdomen was found to be enormously distended, measuring in circumference 46 inches. It was dull all over and gave a modified thrill. The veins were dilated in the upper half of the abdomen.

The operation was carried out on May 8th, the patient being placed in the Trendelenburg position. A median incision had to be carried upwards to the mid-point between the umbilicus and the xiphoid cartilage. The cyst was adherent to the anterior abdominal wall for the whole distance and for four inches in width, also to the under surface of the right hepatic lobe and to the omentum and the duodenum. It contained 17 pints of fluid and sprang from the right broad ligament. One and a half pints of saline solution were transfused while the patient was on the operating table. She died on May 9th.

The most noteworthy point in the case appeared to be the existence of these widespreading and firm adhesions in a patient who had never been tapped. In all previous cases where adhesions to the anterior wall were noticed paracentesis had been carried out several times and the complication has usually by most surgeons been attributed to this measure, which in earlier times was always practised before any attempt at removal was made. Here, as I have said, there had been no such preliminary interference and yet the adhesions were the firmest and most extensive that I have ever seen.

Fibroid disease of the uterus.—The cases in my list number 96. Of these the first three, operated upon between 1890 and 1894, were fatal. The first two were examples of extraperitoneal hysterectomy, the pedicle being brought out of the abdomen and fixed in the abdominal wall. The third was a fibro-cystic tumour springing from the uterine fundus and it was removed by a wedge-shaped incision, the cut uterine surfaces being afterwards sutured together. A glass drainage-tube was placed in Douglas's pouch and drainage in this direction was carried out by means of a syringe and tube by which its contents were from time to time removed. The patient died on the second day evidently from sepsis. Both these methods are now obsolete.

In 1897 Clark of Johns Hopkins University showed the futility of suprapubic abdominal drainage in these and similar cases and its harmfulness and since that time I have totally abandoned its use. Although I was fortunate enough to see the late Lawson Tait operate upon this class of case by his own operation of removal of the ovaries I have never practised that method. In one case I started with that intention but the left ovary was buried between two masses of fibroid growth and the whole front of the tumour was covered by large veins beneath the peritoneal coat. An attempt to ligature the ovarian artery on this side set up so much and such uncontrollable oozing of dark venous blood that I was forced to abandon the idea and proceed to entire removal. Soon after I became impressed by the writings of Brown-Séquard, Dunn, and Curatulo as to the value of the internal secretion of the ovaries and I saw enough of the evil results which followed removal of both ovaries for tubo-ovarian abscess during operations for double pyosalpinx to convince me of their truth, so that I have no examples of this method which I then determined to avoid. Tait himself made certain admissions which detracted much from the force of his previous strenuous advocacy. In certain cases he had found that good results were greatly delayed, in one case for two or three years. This was a serious drawback in such cases, which then were only operated upon when the patients were exsanguinated by the furious losses of blood; they bore operation badly, and a rapid check to the bleeding was the one thing required. Obviously a measure which required so long for its action to become effective left a good deal to be desired. Death might very well take place whilst its result was awaited.

In common with all other abdominal surgeons I was greatly impressed by the accounts received from Paris of the work of Apostoli and by the elder Keith's impassioned advocacy of his method of electrical treatment. At some considerable expense I obtained all the necessary instruments and treated a few cases in this way but it rapidly became evident that the positive pole was only a neater and more effective way of using a cautery, whilst I could never satisfy myself that the negative pole produced any results at all worth consideration. The craze lasted for a time and then died out. Tait, Martin, Mackenrodt, and others reported cases followed by distinctly evil results, and now, I suppose, there are not more than three or four men, if so many, who advocate electricity as a serious treatment for fibromyoma. Meanwhile the methods of removal of the actual tumours themselves became greatly improved and simplified, the two greatest advances, so far as I know, being the panhysterectomy of Christopher Martin and Landau's splitting operation, a modification of which is known as morcellation. The former operation I have performed 46 times, in 12 of which I have carried out the combined operation, commencing from the vagina, separating off the bladder, opening Douglas's pouch and tying both uterine arteries before opening the anterior abdominal wall. By this means, although from the first it was recognised that the later steps would have to be carried out through the abdomen, either because of the mere bulk of the tumour or because it was complicated, as this condition of the uterus so often is, by pyosalpinx, the abdomen was kept open for a much shorter time than would otherwise have been necessary and the whole work was accompanied by less bleeding because the main vessels, the uterines, were ligated early in the process. It has often proved to be a very difficult thing to obtain control of these vessels from above. The mass of fibroid is greatly in the way; it grows often irregularly and may press the uterine arteries much out of their normal position above or bury them beneath it. From below these vessels, on the contrary, can easily be found and secured in the majority of cases. But of course

such a proceeding involves necessarily, just as vaginal hysterectomy involves, the loss of the cervix. It has always been a source of profound wonder and admiration to the writer to see the anxiety of some operators to save the cervix. For several years the so-called supravaginal amputation of the cervix was the most vaunted operation and even yet, as in one of the medical journals of June of this year, a well-known surgeon advocates the French modification of this operation—*l'hysterectomie subtotale*—and brings forward a string of cases to support it. With these operators there is apparently nothing so highly prized as this bit of tissue. At first the cervix was cut straight across at or about the level of the internal os. Then, as it was found that pus sometimes accumulated about its upper end, necessitating dilatation of the remaining cervical canal in order to liberate it, the canal was variously treated at the time of operation. It was mopped out with strong carbolic acid, it was cauterised by the Paquelin or electric cautery, it was dilated and gauze drawn through, it was cut out—the whole remaining cervix was split and a wedge removed containing the canal; it was shaved down and the fragments reunited. We were told that it was the keystone of the pelvic diaphragm, that without it the pelvic contents would prolapse, that if entirely removed the vagina would atrophy and become senile, that by its removal the ureters would almost infallibly be damaged, that it prevented infection from the vagina, although a canal, and often a septic one, passed down its centre connecting that cavity with the raw surfaces above and although at the same time vaginal hysterectomy, which necessitates its removal as a primary step, was growing in favour and was admittedly not followed by all these terrible results. There were several plain reasons why it should go, not the least of which was the subsequent degeneration of it in some instances, by carcinomatous changes in after years, but, in spite of all, certain surgeons still clung desperately to it as all-essential. They seemed to say, to parody a well-known rhyme:—

> Let abscess, sepsis, cancer risk our patient's life,
> But leave us still the cause of all this strife,
> Our bit of cervix!

When the uterus has been removed, however, the pelvic peritoneum has always, if possible, been closed. In the majority of cases this is not merely possible but easy. The ligatures upon the tubes at each side are left long. Toothed forceps secure and draw down the peritoneal flap hanging from the bladder in front and the rectum behind. The tubal ligatures are drawn upon, so that the ends of the tubes are brought beneath the level of the flaps; these latter are sewn over and to them by a continuous catgut suture which closes entirely the peritoneal cavity, which now needs no drainage, since all the raw surfaces are outside it. A light gauze packing is laid between the raw surfaces of the base of the bladder in front and the raw broad ligament surfaces on either side. This is withdrawn in three days' time and is not replaced. By that time the peritoneal cavity is absolutely closed; the raw surfaces beneath can safely now be treated by irrigation daily, since no fluid can find its way into that cavity and the relief to the patient, who now no longer needs to dread the packing of new gauze between tender surfaces, is immense. No decomposing material can accumulate since the lower opening is perfectly free and granulations rapidly fill up the steadily contracting space. The whole process usually takes about three weeks, sometimes even less. Another great advantage of this plan is that the omentum and intestines have now no raw surface or edge to which they may become adherent. They move smoothly over a perfectly smooth peritoneal floor. They cannot escape into the vagina as has happened more than once when the whole vaginal outlet has been left open. Four cases are, perhaps, worthy of more detailed remark and may serve to illustrate most of these points. I take one from 1893, a case treated by extraperitoneal fixation.

CASE 88.—The patient, aged 38 years, who had been married for 20 years, had had three children, the youngest of whom was 13 years of age. She was admitted to hospital on April 17th, 1893. Menstruation had commenced at the age of 15 years; it was normal, regular, and painless. Three years previously to admission the patient had suffered from hæmorrhoids and an ischio rectal abscess. Seven years before examination she had received a kick in the abdomen and six months later she first noticed some swelling. This was associated with intermittent pain; during the last six months the increase in the swelling had been far more rapid and the pain which had always been more marked on the right side had become constant. Examination showed a greatly enlarged abdomen with a circumference at the umbilicus of 38 inches and a vertical measurement from the xiphoid tip to the pubes of 16½ inches. The main swelling lay obliquely in the pelvis, its rounded fundus lying in the right iliac fossa. In the middle line and above lay a smaller mass intimately connected with the former. The uterus was carried high up in the pelvis out of reach by the finger in the vagina.

Operation was proceeded with on April 24th, the dorsal position being adopted. A long median incision was made from the pubes to two inches above the umbilicus. The omentum was adherent to the upper mass. These adhesions were tied and cut. The tumour was turned out of the abdomen; it appeared to extend from one side to the other of the pelvis. An elastic cord was carried round its base and tied. Strong pins were passed through the pedicle below this. The main tumour was then cut away; it included the uterus above the internal os which was imbedded in the mass, which appeared to grow from the back and sides of that organ. A strong wire loop was placed in the groove made by the elastic cord and tightened up. When this was tight the cord was removed. More of the growth was dissected out, the wire being still further tightened as this was taken away. Some vessels were tied on the surface. A glass drainage-tube was placed behind in Douglas's pouch. The parietal peritoneum was then united to the stump all round except where the Keith's tube lay. Whilst closing the abdomen hæmorrhage came on, necessitating a reopening of the wound and the ligature of a vein behind the stump. The collapse was very great. Ten ounces of normal saline solution were injected into the median basilic vein. Death from shock occurred on the 26th. The tumour weighed 16½ pounds. The loop was found to have nipped the fundus of the urinary bladder.

CASE 503.—This case was treated by panhysterectomy. The patient, aged 57 years, was sent by my friend, Mr. J. E. Harburn of Buxton, in May, 1902. She had been married for 27 years and her only child was now 25 years of age. Menstruation had always been regular until 18 years previously, when an increased flow was first noticed. One year later intense flooding suggesting a miscarriage was experienced. From that time she had lost greatly at each period and was usually in bed for a fortnight and on a coach for the next fortnight in order to recruit, "the flooding was so tremendous." She had consulted various well-known surgeons, amongst them the late Sir Spencer Wells. He and most of the others counselled patience until the arrival of the menopause, as the tumour was very large, and it was feared that she would not survive any attempt at its removal. Another person consulted was Mattei, at that time famous for his bottled blue and pink electricity. About a year preceding examination urination had ceased for three days, during which time she had suffered greatly. The abdomen became distended and there was intense pain over the lower abdomen and the right kidney. After frequent hot baths and fomentations a little urine passed; this was succeeded by a large clot and some fluid blood, after which the secretion became again normal. This was the only severe attack of the kind but from time to time micturition with passage of pus and blood mixed with it had been more frequent than usual, and such occurrences had been accompanied by some pain in the right renal region. There had never been any difficulty in defæcation but diarrhœa had been present occasionally. She was examined on May 15th. There was a large irregularly shaped mass in the hypogastrium spreading into both flanks, but especially towards the right side. The abdomen was pushed forward below. Portions of the mass were extremely hard. All the outlines, however, were distinct and rounded. The os was carried high up and was somewhat fixed. Its lumen was patulous and a very offensive discharge issued from it. The broad ligaments appeared to be free near the pelvic wall on either side.

The patient was operated upon on May 17th. A long median incision was made from the pubes to two inches above the umbilicus. The abdominal wall was very thin. A large amount of œdematous omentum containing large tortuous veins was adherent mainly to the upper pole of the uterus which, greatly enlarged, formed the centre, with two wings formed by calcified subperitoneal fibroids springing from either side. After separation of the omentum the left infundibular ligament was tied and divided and the bladder was separated in front. There were several broad

membranous adhesions between the top of this viscus and the tumour. Then the right infundibular ligament was also tied and divided; both ovaries were left. The vagina, being made to project by a long curved forceps passed up into the posterior fornix, was cut through from above and the os was seized by Doyen's erigue and pulled up. As this was drawn up the vagina was divided all round and the uterus was peeled off the remaining attachments to the bladder. The uterine arteries were tied and divided. The mass was then cut loose and removed. It weighed 7 pounds 13 ounces. All ligatures were cut short and the pelvic peritoneum was united over gauze drawn through into the vagina. The anterior wound was then closed. The mass removed was composed of several large tumours. One very large one on the left was calcified. Another in the centre springing from the fundus uteri was pedunculated with a very thick pedicle. The uterus itself contained many fibroid masses; one especially was partially extruded from the left wall into the uterine canal and had at its lower extremity been so gripped by the internal os that all below this point was gangrenous. The operation lasted two hours. The patient returned to bed with a temperature of 98° F. and pulse of 80. With the exception of the formation of an abscess, which was opened in the left inguinal region and drained, she made a very good recovery and lived in perfect comfort for two years. At that time a subperiosteal sarcoma appeared in the right humerus at its upper extremity and spread rapidly over the scapula, causing death in about eight months.

CASE 354.—Landau's method was adopted in this case. The patient, aged 43 years, was admitted on August 22nd, 1899. She had had one child who was now 21 years old. Menstruation had commenced at the age of 18 years and was regular up to the only pregnancy. The labour was a lingering one and the patient had never been well since. Menstruation commenced again afterwards and was regular during lactation and since. There had been no miscarriages. She was first seen in April, 1899. At that time there was a tender mass in the right iliac fossa which she had noticed for two years and to which her attention had been drawn by its having caused her to vomit and the pain in this region produced by that act. There had been constant heaving and regurgitation of food ever since. The right Fallopian tube was found to be full of pus at that time and was removed by abdominal section but the uterus appeared to be normal in size and shape. In August, 1899, she returned, complaining of fresh pain and the uterus was then felt to be enlarged, tender, above the pelvic brim, and irregularly bossed. The enlargement was mainly to the right, the rounded masses being hard, smooth, not elastic, with clean, well-defined outlines, and evidently intimately connected with the uterus.

On August 29th a vaginal hysterectomy by Landau's method was performed. Douglas's pouch could not be opened in consequence of the adhesions. After freeing the uterus anteriorly it was split centrally; as this advanced the adhesions above became still plainer and the uterine fundus was peeled out of them. During the splitting the scissors encountered and split several fibroid masses which were peeled out of their capsules, thus greatly diminishing the size of the uterus and permitting it more easily to descend. When the split uterus was brought down a large elastic mass was found fixed by adhesions in the position of the left ovary. By tying and dividing the now tense round ligament and peeling away from the left broad ligament it became possible to enucleate the mass from below and in front upwards and backwards. When delivered it proved to be the left ovary and tube which formed a tubo-ovarian abscess. The pelvic peritoneum was closed by suture, all ligatured parts being drawn below. These ligatures were now cut short and the vagina was loosely packed with gauze which was removed on Sept. 3rd. The patient made a rapid recovery, as nearly all these vaginal enucleations have done, in marked contrast to those of the same class treated by abdominal section.

CASE 355.—This case was treated by the combined operation. The patient, aged 65 years, was sent by Dr. R. T. Parkinson of Manchester on April 23rd, 1899. She had been married for 43 years and had had seven children and two miscarriages. Menstruation had commenced at about the nineteenth year of age. At that time it was irregular owing to anæmia. It was regular up to the age of 54 years, but afterwards was irregular up to 60 years of age, when it ceased. Eight years previously to examination a polypus was removed per vaginam by another surgeon. The patient was fairly well afterwards for some weeks but then she began again to have floodings and pain, especially on urination. For about five years an extremely offensive discharge had appeared and she had been considered to be suffering from carcinoma, apparently for this reason, by other medical men who had seen her. She was examined on April 23rd, 1899. The os was widely dilated. A foul-smelling, brownish, watery fluid was escaping, mixed with cheesy-looking débris. The uterus itself was large, mobile, rounded with irregular projections, also with clean, rounded outlines passing, but with no infiltration, into the broad ligaments on either side. There was a very troublesome cough with bronchial expectoration.

The operation was carried out on April 27th. First stage.—The patient was placed in the lithotomy position. The cervix was stuffed with gauze and sewn up. The bladder was separated off for some distance. Douglas's pouch was apparently opened and the vaginal wall was divided all round the cervix. The broad ligaments were tied and divided for about one and a half inches on either side. As there was troublesome hæmorrhage from the posterior wound five forceps were left on. Second stage.—Placing the patient in the Trendelenburg position the abdomen was opened by a median incision. The left Fallopian tube was tied and divided near the uterus. The wall of the uterus was greatly thinned and it tore during manipulation, liberating some foul material which was caught on sponges which had been packed around and beneath. There was a veil-like broad adhesion behind which was divided. The bladder was entirely separated in front. The opposite tube was also tied and divided and the uterus was removed. There was still considerable venous hæmorrhage from the edges of the divided broad ligaments. These were clamped but as the patient showed increasing signs of collapse a gauze drain was drawn through into the vagina, its upper extremity being flush with the peritoneum; the clamps were left and the abdominal wall was closed up to and around them. Once or twice during the ensuing 24 hours collapse was again threatened but it was averted by transfusion of saline solution and other measures. The forceps were removed on the 29th. The lower part of the abdominal wound was covered by slough. Very foul discharge came from the vagina. A very anxious time followed. The gauze was removed from the vagina on the 30th, on which day some flatus passed per anum. The urine at first was passed unconsciously but control was soon recovered. The bowels were opened on May 1st. The facial expression was for a long time extremely bad but the pulse remained slow and full and there was no rigidity of the abdomen. Large black offensive sloughs were removed from the abdominal wound which was dressed with glutol and pure phenol and later with ichthyol ointment. Fluid passed freely through from the abdominal wound to the vagina and *vice versâ* during douching until the 6th, when the communication became blocked by repair. Ultimately the patient recovered perfectly and that winter she for the first time for eight years spent Christmas with her children. Before this she had been prevented by the foul smell of the sloughing fibroma from mixing with any of her relatives.

Considering the safety of hysterectomy at the present day—I have not seen a single death after the vaginal operation for the last three years—is it still considered wise to advise patients suffering from this disease of the uterus to postpone operation in the often futile hope that the menopause will bring an end to their sufferings? In Case 502 the change of life had been looked for as a certain cure and was still being hoped for at 57 years of age. Fortunately she fell into the hands of a man (Mr. Harburn) who recognised the unwisdom of this course of action, saw that the loss of blood was not being made up in the intervals, and advised operation. This delay in what is the only absolute cure can only decrease the chances of success when at last operation is decided upon but it is painfully frequent even now. Should there be the least suspicion of malignant disease of the uterus medical men are ready enough to advise removal at the earliest opportunity and look upon delay as almost criminal. It is right and proper that this should be so. No one can attack carcinomatous disease too early but how often after such an operation has been primarily perfectly successful have we not to deplore recurrence of the growth or its secondary appearance elsewhere? In pure fibromyoma once the uterus is removed there are no such regrets. The operation is done, the growth and the organ in which it grew have gone, and being non-malignant and peculiar

to that organ cannot recur. If fibroma is liable to sarcomatous degeneration, as would seem to have occurred in the case quoted, that is a late change and is only another argument for early removal. The fibroid change in the uterus in Case 502 had obviously been present for 20 years. If the sarcoma which appeared in the patient's humerus two years after hysterectomy was really, as we may suspect, secondary to the uterine growth, will anyone maintain that it had been present in that growth for the whole 20 years? and if not there must have been a time when removal of the fibroid uterus would not merely have stopped the excessive hæmorrhages from which the patient suffered so long and which practically debarred her from the enjoyment of life—which in all other respects her surrounding circumstances and her own disposition combined to render a very pleasant one—but have preserved her from the terrible disease to which at last she fell a victim. In carcinoma we do our best, but we too often fail in consequence of the very nature of the disease for which we operate. In fibromyoma the same proceeding brings about a successful and *permanent* result but with some medical men the operation is practically tabooed for this very reason—because the disease is not malignant and therefore will not immediately kill the patient.

One other objection to these operations which, I understand, is still made in some quarters, that the operation brings about acute menopause and so endangers the mental condition, is obsolete, because in these later operations the ovaries are left. In most cases which I have seen the mental as well as the physical condition immediately and permanently improve because the ovaries and the brain are no longer starved of their proper supply of blood. As time goes on one finds it more and more possible to complete these and similar operations through the vagina and the gain to the patient in rapid recovery and to the surgeon in loss of anxiety is extremely great.

Carcinoma of the uterus.—Cases of carcinoma of the uterus have been always treated by removal by the vaginal route. Of these I have seen a large number but have only operated by hysterectomy upon 19. I have since my earlier experiences made it a rule to attempt no case in which the disease had spread into the broad ligaments. So far I have read and have heard no evidence which has seemed to have sufficient force to induce me to do otherwise. I have, however, always explained to the sufferer or her friends that some other operators do not hold the same views and left them free to consult those who might be more daring. So far none of such patients have come back to me 18 months later to convict me of cowardice. Any who have preferred to remain have been treated by free curetting and the application of Paquelin's or the electric cautery, and these measures, with the free application of a mixture of orthoform and glutol, have appeared to give results at least comparable to those of other operators who have practised extensive removal of lymphatics and glands—Schuchardt's (the latest) operation included. The usual duration of life after the case was first seen has been about 16 months. Three of my cases in which the disease was confirmed by reports from the Clinical Research Association or other trustworthy microscopists are still alive and well more than three years after operation, one 11 years, one seven, and one just over three. From eight of the others my letters of inquiry have come back through the Dead Letter Office, four have been operated upon during the last three years, and though all living are not yet old enough to speak about. The remaining four I know to be dead from recurrent or secondary growth. I strongly suspect that the eight who have not replied are also dead in the same way. It is a relief to turn to more satisfactory lines of work.

Ectopic pregnancies.—I have seen and operated upon 13 of these and with them I have been very fortunate, since so far I have had no fatality. Four cases are given in detail below.

CASE 299.—The patient, aged 20 years, had been married for 16 months and had had one miscarriage. She was admitted to hospital on March 2nd, 1898. Menstruation had been perfectly regular until two months previously to admission; at that time her period was delayed for 14 days. When it recurred it was followed by an irregular discharge of shreds and clots which continued up to the time of her admission. Pain in the left inguinal region was first noticed on Feb. 26th. Its onset was sudden, whilst the patient was kneeling cleaning the floor. This had recurred in paroxysms ever since, with a great deal of tenesmus. Vomiting occurred twice during the missed fortnight but not again until March 2nd, since which time it was incessant until operation. There were some dragging of the left leg and some sharp pain during urination. Bimanual examination showed a boggy mass in the left fornix and pulsation in the uterine artery below was rendered more palpable. This mass was of uneven consistence, being distinctly boggy in places. The shape was that of a German sausage, about three inches long. The pulse was 68, the temperature was 99·4° F., and the respirations were 16.

On March 4th an abdominal section was made. The left tube was ruptured and contained black clot. Some dark blood and clots were found in Douglas's pouch and some also amongst the intestines. Both the left tube and ovary and all clots were removed. The right Fallopian tube was swollen and elongated but it was left as it seemed capable of recovery. The uterus was slightly enlarged, reddened, and roughened. It was not touched. The abdomen was closed. Perfect recovery followed and the patient was discharged from hospital on April 27th.

CASE 352.—The patient, who was 27 years of age, had been married for six years and had had two children but no miscarriages. She was admitted to hospital on March 9th, 1899. Menstruation had commenced in her eighteenth year and had been regular and painless up to the time of her marriage. Her last child had been born four years and nine months prior to admission. Lactation had extended over 14 months. The periods had returned 12 months after labour; then there was amenorrhœa for two months, after which it became regular. Three and a half months previously there had been a missed period; the next period was also absent. One month before admission a brownish-red discharge appeared which persisted up to the time of operation. On Feb. 18th she had passed a flesh-coloured mass, a second and smaller piece coming away a few days previously to admission. Pain in the hypogastrium and in both inguinal regions was said to have been present since September, 1898, and had become steadily worse. This pain, which was paroxysmal, was accompanied by syncope and occasionally by vomiting. She was examined on March 9th, when a soft doughy mass was felt behind, and to the left of, the uterus which was itself not much larger than normal but was pushed, cervix and all, over to the right. The mass was of uneven consistence and its outlines were vague. There had been some difficulty in defæcation for a fortnight. The straining always intensified the pain and during the last week this pain had been felt down the right leg as far as the ankle.

On March 10th an abdominal section was made. The omentum was adherent in front to a tense purplish tumour which occupied the left broad ligament, bulging into, and closing, Douglas's pouch and extending up to the pelvic wall. The small intestine was also adherent above. The mass contained large clots; these were carefully removed but no ovum was seen. The opened-up broad ligament was closed by silk suture and the abdomen was closed. Perfect recovery followed, the patient leaving the hospital on the 24th.

CASE 493.—The patient, aged 36 years, had been married for 17 years and had had 11 children, one miscarriage occurring between the first and second full-time children. She was admitted on Oct. 27th, 1902. The youngest child had been born six months before admission. The infant was suckled until its death four months later. The last period seen was in the first week in the month of September. When this period began it was accompanied by great pain in the right sacral region. The flow was much more than was usual and the period may have been a day or two later than normal but there had often been irregularity in date even before marriage. The pain decreased as the flow became established but it never subsided completely. It passed down both legs nearly to the knees. Since this period there had been the sensation of commencing menstruation every day. On the 23rd the patient had felt pretty well on rising and during the morning but at 12.30 noon sudden intense pain was felt in the epigastrium, rendering her unconscious. On recovery she was cold, sweating, and nauseated. There was no vomiting. This pain lasted with intermissions until her admission, occasionally passing into the right iliac region but never into the left. When it was felt on the right side she at once again became faint with cold sweating. There was some general abdominal swelling since the 23rd up to the time of operation. The breasts were not enlarged. The patient was extremely pallid with a rapid shallow pulse. There was some dulness in the right inguinal region. There had been absolute constipation since the 24th.

Operation was proceeded with on Oct. 27th. An incision was made in the outer edge of the right rectus, as we could not be sure that we might not be dealing with a ruptured appendix. On opening the peritoneum large quantities of bright fluid blood mingled with black clots escaped as if under tension. The uterus was pulled up and the right Fallopian tube was found and was clamped close to the uterus and the infundibular ligament outside the fimbriated extremity. Still the bleeding continued and there was some doubt as to its source until it was found that the omentum, which had been adherent and which was separated rapidly in order to reach the mass, had retracted to the left and that the blood was coming from a vessel in it now out of sight. It was recaptured and tied; all bleeding now ceased and the old clots were carefully removed. The tube was tied off and taken away. The patient was transfused with two pints of saline solution by the median basilic vein and half a pint under each breast. The abdomen was closed. The patient was somewhat collapsed but after the transfusion she rallied pretty well. On the 31st pain over the right chest was experienced and there was some discharge of clots per vaginam. An abscess formed in the right pleura, which was opened on Nov. 5th. On the 17th some fluid was found on the left side and liberated. Ultimately the patient recovered entirely and returned home.

CASE 278.—The patient, whose age was 28 years, had been married for 11 years and had had four children and one miscarriage. She was admitted to hospital on Sept. 14th, 1897. The birth of the last child had taken place three and a half years previously and the patient had never been well since. The confinement had been tedious and was said to have lasted for five days, a midwife being in attendance. Before getting up from confinement she had noticed pain in the left inguinal region. This had been intermittent ever since. She was in bed for two months. The left leg also had been painful and aching but never swollen. Menstruation had been regular ever since up to July, 1897, when for a period of eight weeks there was no flow. On August 21st and ever since blood in slight quantity had been passed but no shreds or membranes. Sleep was now interrupted by gnawing pain which would come on suddenly and would last for five or six hours and then slowly subside. During each period of pain the flow of blood increased. Her temperature on admission was 100·2° F. On examination the os was found to be open and the cervix to be split. The uterus appeared to be in the median line and but slightly enlarged. Behind, in Douglas's pouch, was a soft elastic mass extending towards the left side. The uterus could be defined as distinct from this. The mass was of uniform consistence. The broad ligaments were free on the right but vaguely blended with the mass on the left. In the left fornix the uterine artery could be felt pulsating.

On Oct. 4th an abdominal section was made. On opening the abdomen a multilocular ovarian cyst presented itself of about the size of a cricket ball. The right tube was closed and swollen. These were removed and below a collection of black clot was found in Douglas's pouch, over which was spread out the left Fallopian tube, in the lower surface of which was a rent and the lumen of which still contained a large clot. The tube had given way near its uterine extremity; the main swelling appeared to be outside the inner half of the tube. All these tissues were covered over, and fixed, by adhesions which, however, easily gave way. The whole diseased and ruptured tissues and blood were cleared away; the left ovary, being healthy, and the uterus were left. The abdomen was entirely closed. The patient rapidly recovered without any bad symptom and was discharged well on the 23rd. She returned to hospital on March 5th, 1899, with retroflexion with adhesion. Ventrosuspension was performed on the 7th, all adhesions being freed and she went home free from all discomfort on the 24th.

It may be noted that all these ectopic pregnancies were attacked from the abdominal side. I believe that certain accomplished surgeons have succeeded from the vagina but I know of one case where this method had to be abandoned owing to hæmorrhage from the ovarian artery which could not be controlled because of the adhesions above which would not permit of the delivery of the tube downwards. The abdomen had in the end to be opened and the patient died, exhausted by the loss of blood. It has always seemed to me far safer to go at once for the source of the hæmorrhage by the route which gives the most rapid access. Once the abdomen is opened it is the work of a few seconds to apply two clamps—one to the uterine end of the tube to control the uterine artery and the other to the infundibular ligament to control the ovarian. Once these are clamped no further blood can escape except from adhesions and the cleaning up can be done with more leisure and with perfect safety. In Case 493 it would have been impossible to detect or to reach the vessel in the omentum, which would equally have been torn through if the operation had been attempted from below. None of the arguments which in ordinary cases tell so much in favour of the vaginal route, neither the more rapid convalescence nor the lessened risk of peritonitis, seem to outweigh the force of this primary advantage of the abdominal route in ectopic pregnancies, the more rapid and secure hæmostasis so obtained.

Inflammations of the Fallopian tubes.—From rupture to inflammations of the Fallopian tubes is a natural transition. Of these cases I have operated upon 58 with six deaths. Of all operations these are perhaps the most varied and the most difficult. One rarely finds two exactly alike. The amount of adhesions present, the difficulty of isolating, the complication of the appendix which may be greatly elongated and connected either with the right or the left tube, and numerous other factors all coincide in presenting a condition which taxes all the resources of the operator. Here, too, the difference between the two routes has been the cause of many battles; but why should any man seek to be known as a vaginal or an abdominal operator *tout seul?* Surely the wisest course must be to choose that route which in any particular case is likeliest to be followed by success. So far as my experience goes everything depends in the first place, upon the relative position of the tube with reference to the vaginal wall, and in the second, upon the acuteness or chronicity of the process. In acute cases, other things being equal, the vaginal route would appear to be much the safest; at all events for the evacuation of pus. Later enucleation and removal of the diseased tubes can be done, if required, with much more safety from above than if at any moment a weak spot which has been temporarily plugged with omentum or bowel should flood the whole pelvic peritoneum with pus while this is being separated off. It is especially in these cases that one sees the action of the omentum in executing repairs about the abdomen but unlike most tinkers its work improves with age; when just done it is not very much to be trusted. Probably, however, the greatest difficulty is found with the small intestine. As to the omentum it may be divided at a distance and so the patch be left undisturbed, but this is scarcely practicable with intestine. Theoretically a loop firmly adherent might be excised, the remaining bowel being reunited; but practically the operation for the removal of a double pyosalpinx is already long and exhausting enough for any patient. If to all the manœuvres unavoidably necessary are added those for excision of the intestine very few of these patients would survive. It is unnecessary to labour the point. It is especially in such cases that the age of the pus which almost necessarily escapes is of importance, as such pus becomes sterile if it has been long since formed. In theory all such pus should be prevented from touching the pelvic peritoneum by flat sponges placed beneath. In practice it is often impossible to place such sponges beforehand; they can only be placed in spaces already cleared, and separation of adhesions must always precede step by step their insertion. It is when the fingers are at work behind and below a tensely-filled, thin-walled large mass, where no sponge can get because there is as yet no space for it, that this dreaded escape of pus is most likely to occur. It is obvious that, if no pus is present at all, being previously drained away by a vaginal opening, the proceeding becomes infinitely safer. The following cases will illustrate the above and other points.

CASE 461.—The patient, aged 30 years, was admitted to hospital on Jan. 1st, 1902. She had suffered from sepsis after a miscarriage two years previously for which she was treated in another hospital in which she remained for four months. From that time she was in fairly good health until Sept. 29th, 1901, when she was confined of a living child. She was attended by a midwife who introduced her hand into the uterus after the birth of the child. The patient recovered slowly but being a charwoman she went to work as soon as it was possible. For 17 or 18 days before admission she felt some soreness all over the abdomen and three days later, though shivering and miserable, she was still at work, when severe pain in the lower abdomen forced her to stop

and go to bed. She remained in bed for a fortnight when she was brought to hospital. Bimanual examination showed the uterus to be pushed forward in the pelvis by a large, tense, elastic mass in Douglas's pouch.

Posterior colpotomy, performed on Jan. 2nd, permitted the escape of a large amount of thin, watery, offensive pus. The temperature, which before had stood at 101° F., promptly fell to 98°. The cavity was washed out and packed with aseptic gauze which was gradually withdrawn within 48 hours. Recovery followed and the patient was sent to a convalescent home on the 31st.

CASE 309.—The patient, aged 29 years, was sent to me by Mr. Harburn of Buxton on Jan. 17th, 1898. She had been married for three years but had had no children and no miscarriages. She had always had poor health and had suffered in early life from anæmia. Six months after marriage she had suffered from "swelling of the ovary." In September, 1897, she had taken cold during a visit to Blackpool and apparently had had a rigor. Menstruation came on soon after and the blood lost was clotted and scanty. Diarrhœa followed some medicine taken and the tenesmus associated with this brought on severe pain which continued more or less until admission. Five weeks later another period came on with the discharge of dark clots. No further menstrual period had been seen. A month after the onset of this illness she began to lose flesh and strength. She also suffered from night sweats. For four months she had been almost entirely confined to bed. On examination on Jan. 17th, 1898, she was found to be much emaciated. The abdomen was slightly distended and there was a perfectly clear note on percussion everywhere. There was a firm, rounded elastic mass on each side of the uterus.

An operation was performed on Jan. 20th, the patient being placed in the lithotomy position. The cervix was isolated, the bladder was separated upwards, and the posterior fornix was opened. This incision opened into a cavity containing about two ounces of foul pus. The uterus was divided in the median line sagittally, but it was impossible to loosen and to draw down either side or to gain access to the masses above owing to the adhesions. The vagina was plugged with gauze. The patient was then placed in the Trendelenburg position and a median abdominal incision was made. A loop of small intestine was found to be adherent to the bladder and the left iliac fossa. In order to gain access to the uterus and tubes it was necessary to separate this, which, with its mesentery, completely concealed them. When this was done the divided sides of the uterus were drawn upwards and a large pus sac was seen on the left side. This was enucleated and with it half of the uterus was removed. It now became easier to deal with the right side. The right half and its tube also full of pus were taken away and the right ovary was shelled out of a mass of adhesions. This was caseous. The whole pelvic cavity was dried out with sterile mops and a gauze drain was drawn down into the vagina. The upper part of this drain was packed into the pelvis so as to isolate and drain the raw surfaces left and the abdomen was closed above. Transfusion and hypodermic injections of suprarenal extract were carried out on the table during the operation itself and she was again transfused after return to bed. The operation lasted one and three-quarter hours. Under these measures and repeated nutrient enemas containing brandy the patient rallied, the pulse returned at the wrist, and the next morning she was distinctly better. There had been free oozing from the vaginal drain but at 8 A.M. vomiting of mucus and greenish material commenced. At 2 P.M. there was sudden collapse treated by renewed subcutaneous transfusion but ending rapidly in death.

CASE 525.—The patient, aged 32 years, who had had three children but no miscarriages, was admitted on Feb. 12th, 1903. The birth of the last child had taken place six years previously. On Feb. 7th she was taken ill with pain in the hypogastrium. She continued her work, however, as a bagmaker until Feb. 10th when the pain became much worse and she had to go to bed. The pain was paroxysmal in character. The periods were regular—monthly. There was some premenstrual pain. There was also pain passing down the right leg. For several weeks before admission urination had been burning in character with the discharge of some pus per urethram. On March 20th, douching and glycerine tampons having been used since admission, urination became easier. Examination under chloroform showed a tense, elastic mass in the position of the left broad ligament. The uterus was retroflexed and the fundus was adherent in Douglas's pouch. It was not markedly enlarged.

For the operation, which was carried out on April 16th, the patient was placed in the Trendelenburg position and a median abdominal incision was made. The omentum was strongly adherent to the left Fallopian tube, which was swollen, convoluted, and closed at its fimbriated extremity. This end was adherent also to the sigmoid flexure. The mass was so firmly fixed in the pelvis and so swollen that it was necessary to begin by tying and dividing the uterine end of the tube and to separate outwards. After a great deal of difficulty this manœuvre succeeded and this tube was removed. The left ovary was left behind. On the right side the tube which had been partly concealed by the large mass of the left was also found to be swollen and convoluted. The ovary on this side was cystic. These were taken away. Many tough adhesions were found in Douglas's pouch and were separated. The question of fixing the fundus forward was considered but decided against. The abdomen was entirely closed. Flatus passed first on the 17th and a stool on the 19th; urination was naturally performed from the first. Complete recovery resulted.

CASE 560.—The patient, aged 33 years, had had no children or miscarriages. She was admitted on Dec. 26th, 1903. She had been in fairly good health until her marriage four years previously; since that time she had always been more or less ill. In August, 1902, she had been treated in another hospital for metritis. She had always been regular as to menstruation but had had leucorrhœa for many years. She was evidently in great pain when admitted and had a free purulent discharge from the os uteri. Examined bimanually, the uterus was found to be pushed to the right and fixed. There was an elastic fixed mass in the pouch of Douglas on the left side.

On Dec. 31st operation was proceeded with, the patient being put in the Trendelenburg position and a median abdominal incision being made. The omentum was found to be firmly adherent to the small intestine, the uterus, and the left tube near its uterine end. After this was tied off a somewhat dilated loop of small intestine was found to be firmly adherent to the back of the uterus and the commencement of the left tube, requiring the scissors to separate it. During this the tube gave way and some cheesy pus escaped. When the bowel was freed this rent was temporarily closed but with difficulty owing to the friable condition of the tissues. The bladder was then separated from the uterus and pressed down out of the way. The uterus itself was swollen and acutely inflamed. The right tube was short but closed at its fimbriated extremity and swollen. The right ovary was slightly cystic and some of the cysts contained pus. The left ovary might have formed part of the left abscess cavity. It was not seen as a distinct structure. Beginning on the right side the entire genital organs were removed—the tubes, ovary, uterus, cervix, and all—by the American lateral method. When all were gone there was left a very ragged looking Douglas's pouch, in which tags of adhesions and some raw surfaces were to be seen. At the back of the right broad ligament was an ulcerated opening leading into a cavity within it. From this some foul granulation material was scraped away and an opening being made into the vagina from this an iodoform gauze drain was drawn through. The ligatures upon the broad ligament and ovarian vessels were drawn through into the vagina and between them iodoform gauze, the upper end of which was left flush with the peritoneum. No attempt was made to close the pelvic peritoneum. The abdomen was then closed above. The operation lasted two and a half hours. Transfusion was required upon the table. This was repeated five hours later, not so much for shock as with an idea of diluting and washing away any toxins which might be present. The patient was nourished by nutrient enemata with brandy every four hours. For about two hours there was intense collapse. This was succeeded by intense restlessness and pain, for which morphine was given hypodermically. Flatus passed on the next day after an enema and fæces on the next night. There was some distension on the second day but this subsided after the passage of flatus. There was no rigidity. The gauze was removed on Jan. 3rd, 1904. The patient recovered perfectly with the exception of a small sinus at the site of a stitch abscess which healed rather slowly and she was sent to the convalescent home on Feb. 12th. In October, 1904, she returned with a small ventral hernia at the site of the previous stitch abscess but otherwise she was well.

CASE 614.—The patient, aged 27 years, had been married for four years. She had had no children but there had been five miscarriages. She was sent to the hospital by Mr. C.

Carruthers of Openshaw on July 15th, 1904. The last miscarriage (three months) had occurred five weeks before admission. Two rigors occurred afterwards during the second week. There was pain in the left side which steadily increased. Menstruation began at 14 years of age. It had been always regular before and after marriage except during pregnancies. On examination on July 15th the os was found to be normal and the uterus was of normal size but pushed forwards in the pelvis. A tense, elastic, rounded mass could be felt on the left side, extending from the uterus to the pelvic brim and lying behind the broad ligament. The right side of the pelvis was clear. The mass was not reachable from the vagina.

The patient was operated upon on July 18th. She was placed in the Trendelenburg position and a median abdominal section was made. The omentum was not adherent. On the left side the Fallopian tube and ovary were fused together, forming a large tubo-ovarian abscess. The uterus was reddened; the broad ligament on the left side was thickened and somewhat œdematous. The tube was much thickened at the uterine extremity. In the angle formed by the mass with the uterus the tip of the much elongated appendix was adherent. In Douglas's pouch there were many adhesions between the intestinal coils and the posterior uterine surface. The right tube was thickened, convoluted, and its fimbriated extremity closed. It was coiled around the ovary so that both had to be removed together. The uterine stumps of the tubes were touched with pure phenol and sewn to the stump of the infundibular ligament on either side. The shortened and reunited broad ligaments were then sewn over by fine silk. All clots being removed, the omentum was drawn down behind the uterus, the abdominal cavity was filled with saline solution, and the abdomen was closed by my modification of Milton's method. The patient recovered rapidly and went home on August 13th. In 1905 she returned with symptoms of acute menopause and was placed on ovarian extract, which she took in the form of tabloids for some months with very good result.

In all these cases when attacked from above immense assistance was found to be gained by the Trendelenburg position. If there were no adhesions of omentum and intestine to the pelvic organs these structures retreated out of the way towards the diaphragm; they were protected from chill by that part of the abdominal wall which was not divided; the intestines did not coil about and impede the hands of the operator, and room was left for the proper placing of protective sponges. If they were adherent the line of adhesion was made tense and prominent. As each portion was liberated it fell back and disclosed the deeper adhesions which in their turn were rendered salient. After experience of this position the surgeon would not willingly undertake one of these operations under conditions which rendered the assistance of this position unattainable. Later I shall refer to a case in which this position was gained in a private house with merely the help of ordinary articles of furniture and describe the means employed. Fortunately this particular class of case does not, as a rule, require immediate interference and there is time for the removal of the patient to a hospital or surgical home where proper tables giving this position are to be had. All operators are, I suppose, agreed as to these advantages but I have been astonished to find that many general practitioners are entirely unaware of their advisability—I might say their necessity—and are inclined to be indignant when they are recommended to send their patient to a surgical home if the house in which such patient resides is otherwise suitable for the performance of an operation.

(To be concluded.)

WATER DIVINING FOR A HOSPITAL.—At a meeting of the East Kerrier (Cornwall) district council held on August 5th it was decided to obtain at a fee of one guinea the services of a water diviner with a view to find a supply of water for the isolation hospital.

PROPOSED NEW RUSSIAN UNIVERSITY.—The Minister of Education, according to the *Slovo*, although sympathising with the movement for the establishment of a university in one of the north-western districts, will only consent, in view of the present disturbed condition of the country, to the opening with the aid of private subscriptions of separate science faculties in various towns in the area named most responding to the needs of the community.

THE CONTINUITY OF THE SEVERAL CAVITIES OF THE MIDDLE EAR,

WITH OBSERVATIONS ON THEIR DEVELOPMENT AND ON THE TREATMENT OF SEPTIC INFLAMMATION OF THE TYMPANIC CAVITY (SO-CALLED OTITIS MEDIA).[1]

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WITH few exceptions both anatomists and otologists regard the middle ear as synonymous with the tympanum and accordingly only a single cavity—the tympanic cavity—is included in the middle ear. We hope to be able to show, however, that the middle ear includes three cavities—viz., the cavity of the mastoid antrum, the cavity of the tympanum, and the cavity of the Eustachian tube—all of which are simply modified parts of a continuous cleft intervening between the periotic capsule and the remaining parts of the temporal bone, which from the standpoint of ontogeny may be termed the primitive middle ear. Since, however, this term may lead to confusion if it is regarded from a phylogenetic standpoint, it may be better to designate it "the middle-ear cleft," and it is to be understood that it corresponds to the modified and extended inner part of the hyo-mandibular cleft of lower forms.

The primitive middle ear in man and mammals is simply a continuous cleft intervening between the periotic capsule and the united squamo-zygomatic and tympanic elements of the temporal bone (see Figs. 1 and 2). The periotic capsule forms the petrous and mastoid portions of the temporal bone and lies to the internal and posterior aspects of the middle-ear cleft; whilst the united squamo-zygomatic and tympanic elements form the outer, the anterior, and the lower boundaries of that cleft. Occasionally, although very rarely, the tympanic element joins the periotic capsule and remains distinct from the squamo-zygomatic element, but in either case it is situated on the antero-external and inferior parts of the middle ear and helps to form the corresponding walls of that cleft. The inner and outer walls of the middle ear join below without any sharp line of demarcation and a well-defined floor of the middle ear is indistinguishable, but the corresponding walls terminate above somewhat abruptly and leave a wide interval which is roofed over by the tegmen tympani. In Fig. 1 the continuity of the middle-ear cleft is seen by the removal of the tegmen tympani; the several cavities of the middle ear are distinguishable, but they are better seen when, in addition to the removal of the roof of the middle-ear cleft, the different parts of the internal ear are mapped out (see Fig. 2). The several cavities and their continuity are still better seen in the recent condition. Fig. 3 is taken from a photograph of a horizontal section cut transversely through the head of a child at birth at the level of the middle ear. Fig. 4, a special dissection of a child at birth, made by Professor Arthur Robinson, shows us from a different standpoint the same facts as seen in Fig. 3.

The preceding preparations (Figs. 1, 2, 3, and 4) show that the middle ear is a continuous cleft and although the cleft becomes modified in parts to constitute the several cavities of the middle ear the continuity of these cavities is maintained. The cavities which collectively constitute the middle ear are from within outwards: (1) the cavity of the bony part of the Eustachian tube; (2) the cavity of the tympanum; and (3) the cavity of the mastoid antrum. These several cavities are again well seen if the united squamo-zygomatic and tympanic elements are removed and the inner wall of the middle ear exposed; this is easily effected if the temporal bone is examined before the junction of the squamo-zygomatic and petro-mastoid parts has occurred. These last-named elements become joined together about the period of birth and

[1] A paper read at the summer meeting of the Otological Society of the United Kingdom held in Manchester on June 3rd, 1905.

certainly during the early part of the first year. At birth, therefore, the two parts are easily separable and the middle ear is readily exposed.

At birth the middle-ear cleft is easily seen and on separation of the two parts which bound the cleft the chief modifications which result in the separate cavities are easily seen (see Fig. 5). At birth the middle-ear cleft is continuous, but a bulbous enlargement of the cleft which forms the tympanic cavity is interpolated between the Eustachian tube and the mastoid antrum. This bulbous enlargement is distinguishable at an earlier period and it extends both upwards and downwards. Its upward extension forms the epitympanic recess or attic. Its downward extension forms the hypotympanic recess.

In still younger preparations—e.g., about the sixth month of intra-uterine life—i.e., directly after the fusion of the centres of ossification of the periotic capsule, the different cavities of the middle ear are visible and their continuity is even more marked (see Fig. 6). In the adult the three chief cavities are, of course, distinguishable and although in consequence of a slight tilting up of the Eustachian tube and the greater extension of the tympanic cavity the continuity of these cavities is not quite so apparent, still in view of the growth and development as seen in younger forms it is obvious that the cavities are continuous and that they are simply modified parts of the primitive middle-ear cleft (Fig. 7).

As a matter of convenience in description we have more or less ignored the tympanic element and it will be sufficient to state that it usually unites with the squamo-zygomatic portion about the third month of intra-uterine life. Very exceptionally the tympanic element fails to unite with the squamo-zygomatic part. This anomaly is rarely seen, but through the kindness and courtesy of Professor Johnson Symington of Belfast we have an opportunity of exhibiting the preparations and photographs of this condition in an adult temporal bone. The squamo zygomatic part remained separate and distinct both from the tympanic plate and from the periotic capsule. It clearly demonstrates the nature of the middle ear as a cleft-like interval between the petro-mastoid and the squamo-zygomatic elements of the cranium. It is of little moment as regards the character of the middle ear whether the tympanic element is joined to one or other of the chief factors which bound the middle ear and, indeed, if the tympanic element is removed altogether the middle ear and its cavities can be easily demonstrated.

From observations on the development and character of the middle ear we think that we are justified in asserting that the middle ear includes three cavities:—(1) That of the mastoid antrum; (2) that of the tympanum; and (3) that of the Eustachian tube.

Amongst the very few authorities who do not regard the middle ear as synonymous with the tympanum and its cavity alone perhaps the most noteworthy is Politzer,[2] who states "that the middle ear, the most important part of the auditory apparatus from a pathological standpoint, is divided into: (1) the tympanic cavity; (2) the Eustachian tube; (3) the mastoid process." The mastoid process, however, is simply the outer portion or base of the periotic capsule and it lies to the inner and back part of the middle ear. It may, and does, form part of the boundary of the middle ear, but most certainly it is not an essential division of the middle ear itself. Time will not allow us to deal fully with the development of the softer tissues of the middle ear nor does it seem necessary; it may, however, be advisable to point out that the inner part of the upper and persistent portion of the *first* visceral cleft occupies the middle-ear cleft in the temporal bone previously described and that it forms the continuous mucous lining of the several cavities of the middle ear. The first visceral cleft, like all other visceral clefts, is formed by lateral outgrowths of the pharyngeal part of the foregut and corresponding in-growths of the outer surface of the neck. In the case of the first visceral cleft the junction of these two parts forms the membrana tympani round about which the ring like tympanic element almost encircles the tympanic membrane. To the inner side of the tympanic membrane the first visceral cleft is lined by the hypoblast or entoderm of the primitive alimentary canal and accordingly the cavities of the middle ear are entirely lined by entodermal cells.

It is perhaps pardonable to regard the lining membrane of the mastoid antrum as being more or less of the nature of a diverticulum of the first visceral cleft, exactly as one might regard the lining membrane of the epitympanic recess or attic and the hypotympanic recess as diverticula, but even this is not borne out by a study of the earlier stages of that part of the first visceral cleft which takes part in the middle ear. The suggestion, however, that the mastoid antrum proper is a diverticulum of the tympanum is utterly and hopelessly wrong. The mastoid antrum is no more a diverticulum of the tympanic cavity than the tympanic cavity is a diverticulum of the mastoid antrum. In all probability the mastoid cells are diverticula from the mastoid antrum and it is of peculiar interest as well as of great practical importance to know that they appear at a much earlier period than is commonly supposed. Most writers affirm that the mastoid cells appear about the age of puberty. Dr. A. Buck[3] delineates well-developed air cells or pneumatic spaces in a child five years old. Sappey[4] asserted in 1867 that the air cells appear during the course of the first year and that by the second or third year they are so far developed that they form a distinctive feature. Professor Symington has lent us specimens and photographs of well-developed air cells in a nine months' fœtus and in a temporal bone of an infant one year old, and Professor Robinson writes that there are distinct but small pit-like diverticula from the mastoid antrum before birth which he takes to be the rudiments of the future air cells.

To summarise briefly the chief facts we wish to lay stress upon relating to the development of the middle ear and its cavities we desire to state:—

1. That the middle ear is simply a cleft which intervenes between the periotic capsule and the squamo-zygomatic and tympanic elements of the temporal bone. The cleft is primarily continuous and however much it may be altered in shape and modified in parts to form the cavities of the Eustachian tube, the tympanum, and the mastoid antrum, that continuity is never lost.

2. That the mastoid air cells develop at a much earlier period than is usually supposed.

With these facts in mind it occurred to us that the orthodox treatment of septic inflammatory lesions of the tympanic cavity (otitis media so-called) would require reconsideration and revision.

In a report on "The Treatment of Acute Otitis Media" presented to the French Society of Otology and Laryngology, May, 1904, by Lermoyez, Lubet-Barbon, and Moure[5] it is stated that "the tympanum and mastoid antrum communicate largely with one another ..... there are no means of isolating these chambers under normal conditions and any microbic invasion in one necessarily affects both. The result is that otitis media acuta is essentially formed by the association of an antritis and a tympanitis. From an anatomico-pathologic standpoint there is no otitis acuta without mastoiditis." As regards the treatment of otitis media the report affirms (under heading C., p. 662) "that the air douche by politzerisation cannot provoke mastoiditis because as there cannot be otitis without antritis" (and mastoiditis) "the air bulb cannot create what already exists." We are unable to accept either of these statements. Every pathologist knows quite well that localised inflammatory processes may occur even in a continuous cavity—e.g., localised peritonitis, localised pleurisy, and these examples are not limited to serous cavities alone, for we find localised inflammations in the genito-urinary, respiratory, and alimentary tracts, and one may specially mention as one of peculiar interest acute inflammation of the larynx, limited to the vocal cord of one side without any general laryngitis. We therefore venture to assert that a tympanitis does *not necessarily* involve an antritis or a mastoiditis and treatment must be influenced in view of this fact.

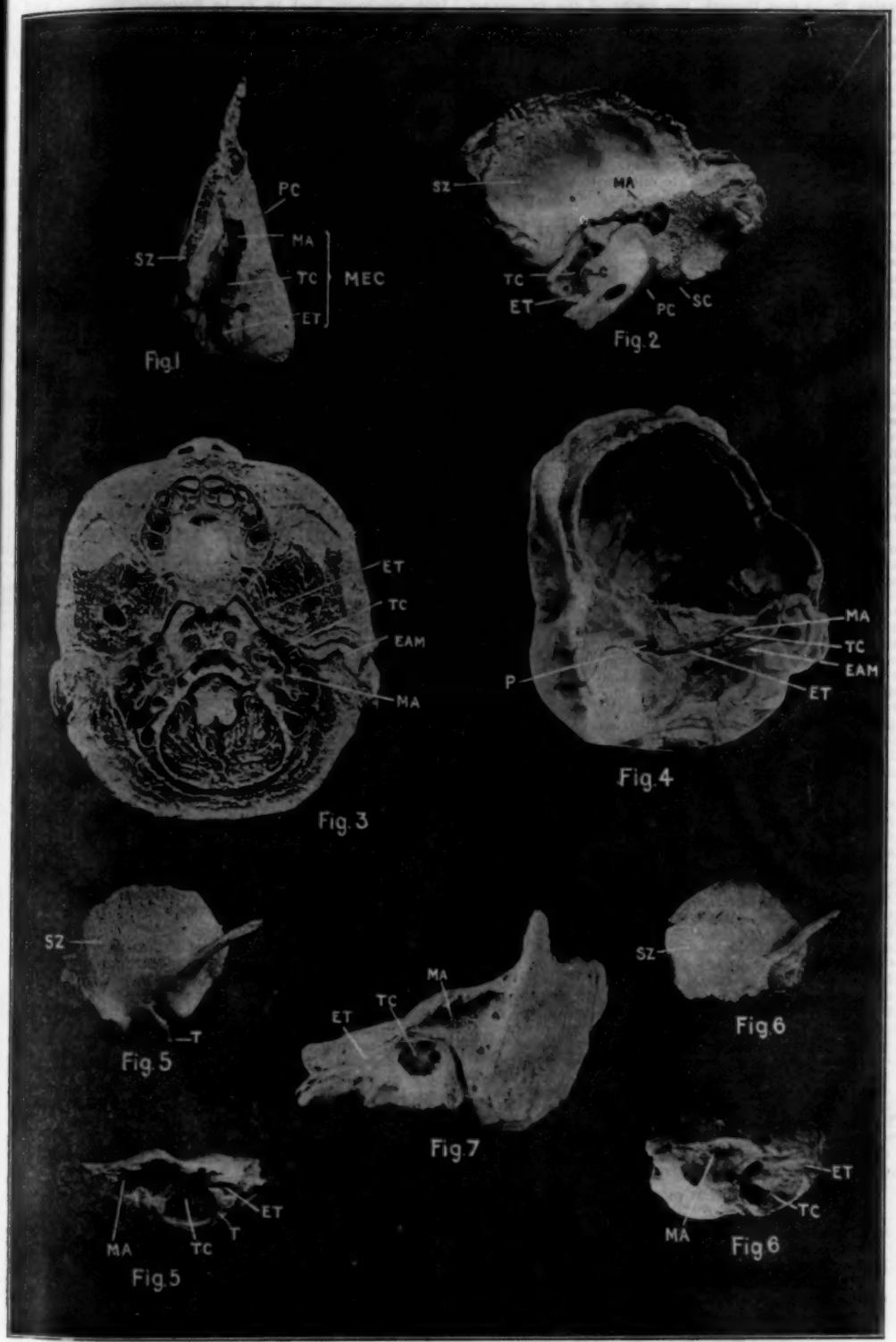
Inflation through the Eustachian tube goes directly to the cavity of the mastoid antrum through the tympanic cavity. In the case of a localised suppurative tympanitis, otherwise known as acute otitis media, the use of the air douche through the Eustachian tube, especially by Politzer's method, will *tend* to force septic material into the mastoid antrum and the mastoid cells. We have endeavoured to demonstrate this in the following manner. Opening up the mastoid antrum externally, as in trephining the antrum, fluid or air injected through the Eustachian tube

[2] Text-book on the Diseases of the Ear, translated and edited by Dr. Ballin and Dr. Helter, fourth edition, p. 12.

[3] Diagnosis and Treatment of Ear Diseases, 1881, p. 297.

[4] Traité d'Anatomie, Paris, vol. i., p. 160.

[5] See Annals of Otology, Rhinology, and Laryngology, December, 1904, vol. xiii., No. 4, p. 648 et seq.



Alphabetical list of reference letters for all the figures: C, Cochlea. EAM, External auditory meatus. ET, Eustachian tube. MA, Mastoid antrum. MEC, Middle ear cleft. P, Pharynx. PC, Periotic capsule. SC, Semicircular canal. SZ, Squamo-zygomatic element of the temporal bone. T, Tympanic element of the temporal bone. TC, Tympanic cavity.

passes freely first through the cavity of the tympanum, then through the mastoid antrum, and the injection emerges through the external artificial orifice. A small perforation of the membrana tympani apparently makes no difference; the injection goes beyond the perforation and emerges, in the first place, through the external orifice of the antrum. This can be beautifully shown by impregnating the air with smoke; on careful observation through the perforated membrane the smoke can be seen passing through the tympanic cavity, onwards beyond the perforation to reach the antrum. It is not until the tympanic cavity and antrum are filled with the smoke-laden air that it emerges through the orifice of the perforated membrane.

This experiment we have done repeatedly, both by means of a membrana tympani perforated artificially and one perforated by inflammatory disease; in every case the smoke-laden air emerges, in the first place, through the external opening of the mastoid antrum and never, primarily, through the perforated membrana tympani. After repeated experiments on the same ear the smoke appears almost simultaneously through both the openings—viz., that of the perforated tympanic membrane and the external opening of the mastoid antrum. This is explained by the fact that the whole of the middle ear is filled with smoke after such repeated experiments. These experiments, we think, conclusively prove that when air or water is inflated it is first forced into the mastoid antrum irrespectively of whether the membrana tympani is perforated or not. We suggest that it would then be forced into the mastoid cells if formed and the fact that these cells are formed early means that there can be no distinction as regards treatment in the child and in the adult.

The conclusions to be derived from these experiments are open to the criticism that an external opening of the mastoid antrum is not present until operative measures have been undertaken. The presence of an external orifice will undoubtedly modify greatly the passage of injected air or fluid through the antral cavity but this modification is merely in the direction of increased quantity and increased facility of transit. The point which we seek to emphasise is that even when the external aperture is wanting there still exists a tendency for injected air or fluid to pass in the same direction. Beyond this one cannot go. Clinical experience teaches us that the disastrous results which follow the passage of septic material into the antrum are not invariable after politzerisation but we are convinced that from the anatomical arrangement of the parts they are by no means impossible.

Politzer states,[6] on the authority of Michael,[7] that "the view that in perforative inflammation of the middle ear purulent secretion is driven into the mastoid cells by the air douche has been disproved" and that Michael had "demonstrated experimentally that the secretion is always expelled into the external meatus," presumably through the perforated membrane. We think that our experiment proves that Michael's view cannot be substantiated. Our contention, therefore, is that in acute septic disease of the middle ear inflation should not be employed. If, however, for any special reason inflation be deemed advisable the Eustachian catheter should be passed and air driven into the cavum tympani with great care and gentleness. We believe that in every case of septic middle-ear disease the first and primary requirement from the anatomical, pathological, and surgical point of view is free and unimpeded drainage. To carry this principle into effect a free incision of the membrana tympani is essential and it is equally essential that the incision be kept open in its whole length by re-incision where necessary or by the actual removal of a triangular wedge of the membrana tympani itself. Furthermore, we believe that aspiration of the contents of the cavity of the middle ear by means of Siegle's speculum or Delstanche's raréfacteur is a therapeutic measure of the first importance, especially when combined with adequate drainage.

DESCRIPTION OF THE FIGURES.

We desire to express our indebtedness to Professor Symington, to Professor Robinson, and to Professor Peter Thompson (King's College, London) for their kindness in lending us many specimens and photographs.

All our figures were reproduced by photographs taken from actual specimens and of these Figs. 1, 4, and 5 were taken from specimens lent to us by Professor Thompson from the collection in the anatomical department at the Middlesex Hospital. Fig. 6 is taken from a photograph of a special dissection made by Professor Robinson. The remaining figures are taken from preparations in our own collection.

FIG. 1.—Right temporal bone of a child, aged four years, showing the "middle-ear cleft" after removal of its roof, the tegmen tympani.

FIG. 2.—Right temporal bone of a child, aged four years. The tegmen tympani has been removed and the parts of the internal ear have been mapped out. The specimen shows the middle ear and its several cavities.

FIG. 3.—Horizontal section of head of a child at birth made by Professor Thompson. The section is cut transversely through the head at the level of the middle ear and shows the continuous cavities of the Eustachian tube, the tympanum, and the mastoid antrum—i.e., the cavities included in the middle ear.

FIG. 4.—Dissection showing the middle ear and its cavities and the relation of the middle ear to the external auditory meatus in a child at birth. The dissection was made by sagittal and coronal sections, removing a wedge-like portion of the face until the middle-ear cleft and the external auditory meatus were exposed. It shows from a different standpoint the points seen on Fig. 3, but owing to the oblique position of the specimen it does not show the whole of the mastoid antrum.

FIG. 5.—Right temporal bone at birth. The squamo-zygomatic element has been separated and the inner wall of the middle ear is exposed; the several cavities included in that cleft are well seen.

FIG. 6.—Right temporal bone of a six months' fœtus. Similar preparation to that shown on Fig. 5 but at a much younger stage. It shows all the cavities of the middle ear but their continuity is more marked than at a later stage. Further, it shows indications of the commencing mastoid cells.

FIG. 7.—The middle ear and its cavities in the adult.

GENERAL STAPHYLOCOCCIC INFECTION TREATMENT BY ANTISTAPHYLOCOCCIC SERUM AND HETOL; DEATH.

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BUT for the fact that a post-mortem examination was made in this case it would have been classed as one of vegetative endocarditis. That this would have been an incorrect classification will appear from the post-mortem report. It has seemed to us that the case is an instructive one and worthy of publication, if only by reason of the negative results of the treatment followed, a treatment based on the supposition that it was a case of infective endocarditis and therefore probably of a mixed infection, as pointed out by Dr. Cyril Ogle. Though the clinical course of the case strongly supported such a diagnosis the onset was in no wise suggestive of this disease.

The patient was a man, aged 23 years, a painter, and beyond the fact that there was an account of rheumatic fever at the age of 13 years there was nothing worthy of note in his previous history. He was well until the morning of March 19th, 1904, when at 11 o'clock he had a sudden pain in the "stomach" followed by shivering. He shivered off and on until the evening when he became feverish. The next day he was feverish but had no pain and the following night he was "light-headed." On the 21st he came to the out-patient department with the above history. His temperature was then 101° F. and the spleen was easily felt below the costal margin. He was admitted. For the following notes we are indebted to Mr. J. B. Stevens, the house physician. The patient was flushed. His temperature was 102°. There were sores about both external nares and a semi-purulent discharge which had existed "for some time." The tongue was red and dry. The pharynx was normal. The abdomen was slightly distended but moved freely with respiration. The spleen was enlarged and easily felt. The liver was not enlarged and there was no local or general tenderness. The lungs were healthy and there were no adventitious sounds. The pulse was dicrotic (96). There was a soft apical systolic murmur conducted for a short distance towards the axilla; it was not suggestive of valvular disease of 13 years'

[6] Loc. cit., p. 81.
[7] Archiv für Otologie, vol. xi.

standing. There was no evidence or history of any genito-urinary disease. The urine was alkaline, of specific gravity 1018, and phosphatic; there was no albumin. The hands and tongue were tremulous. On March 22nd the temperature had been up to 104° in the morning and night and on the morning of the 23rd and it had not been lower than 100·4° since admission. Tepid sponging was employed when it was above 103°. The second heart sound on the 23rd was reduplicated in the aortic and pulmonary areas. The reduplication was louder and more distinct—in fact, quite sharp—to the left of the sternum. There was no diastolic murmur. The air entry at the right apex was poor. The spleen was smaller and was now only just palpable. The general condition remained unaltered. Dr. Bushnell took blood from the left basilic vein with the usual aseptic precautions as regards syringe, needle, and skin; he also took a culture of the nasal discharge. On the 24th the second sound at the base was rumbling in character. The abdomen was more distended, the spleen was not felt, and the highest temperature reached during the past 24 hours was 104° and the lowest was 102·6°. On the 25th there was a distinct diastolic murmur in the pulmonary area conducted down the left side of the sternum; it was not heard in the aortic area. There was no increase of cardiac dulness. Much pain was present in the left side of the chest in the morning and a to-and-fro pleural rub was heard in the lower part of the left axilla and just below the heart's apex beat. On ophthalmoscopic examination the discs were seen to be normal. The pathologist reported that as regards the nasal discharge "two colonies of staphylococcus albus have grown" and as regards the blood "ten c.c. of blood from left median basilic vein sown on agar and gelatin tubes gave a growth in 48 hours of staphylococcus (Gram staining, non-capsulated), probably pyogenes albus; the appearance of short chains in scanty numbers suggests possibility of mixed infection; if plating had been practicable streptococci might have been isolated; no pneumo- or gono-cocci isolated." On the receipt of this report, and considering the possibility of a mixed infection, ten cubic centimetres of polyvalent antistreptococcic serum were given at 4 P.M. A differential blood count showed 80 per cent. of polymorphonuclears. On the 26th the diastolic murmur was louder and there was also a systolic murmur at the base. There was a trace of albumin in the urine which was now acid. The temperature had been no higher than 103·6° and as low as 101·2° during the 24 hours. Another ten cubic centimetres of antistreptococcic serum were given. On the 27th the pleural rub was more extensive. The pathologist reported: "Leucocyte count, 9500—85·6 per cent. polymorphs." In the afternoon the patient had a rigor and the temperature rose to 104°; ten cubic centimetres of antistaphylococcic serum were given. On the 28th the abdomen was more distended and considerable subsultus was present. The temperature was higher in the evening. Ten cubic centimetres of antistaphylococcic serum were given and one-third of a grain of hetol intravenously with the object of establishing a more marked leucocytosis. On the night of the 28th the patient was wildly delirious and in the early morning of the 29th the temperature dropped to 97° and he slept. In the morning his mental condition was quite clear and he said that he felt better. The diastolic murmur was best heard at the aortic cartilage. Ten cubic centimetres of antistaphylococcic serum were given at 6 P.M., when the temperature was up to 103° again, this being followed by ten cubic centimetres of normal horse serum at 8.30 P.M. The temperature at 10 P.M. was 104·4.° The pathologist reported: "There are 14,700 leucocytes per c.mm. blood." On the 30th percussion resonance over both bases was impaired; there was no true bronchial breathing. The patient was coughing up a good deal of foul, bloody, frothy sputum. Ten cubic centimetres of normal horse serum were repeated and one grain of hetol was given intravenously at 3.30 P.M. The leucocyte count five hours later was 14,300. On the 31st the respiratory murmur was diminished and the voice sounds were distant over the left lower lobe; there was also impaired percussion resonance. The temperature was gradually declining; the general tremor was increasing, however. The tongue was dry and the blood-stained frothy expectoration was troublesome to the patient. Normal horse serum and hetol were again given. On April 1st the asthenic condition gradually increased and he died at 10 A.M. About an hour after death, the heart having been seared, a sterilised needle was inserted into the right ventricle and four broth tubes were inoculated with the blood withdrawn; all these tubes developed pure staphylococcus. The pathologist reports: "Films and cultures of sputum show staphylococcus and organism, probably B. coli communis. Spleen (culture in broth made with usual aseptic precautions, post mortem) shows bacillus, probably coli communis, and staphylococcus. Urethra (culture in broth, post mortem) discharge shows bacillus, probably coli communis. Blood (ante mortem) culture on gelatin developed, and was pure staphylococcus, liquefying gelatin freely."

At the necropsy 48 hours after death numerous septic infarcts were found in both lungs with broncho-pneumonia; septic infarcts were also found in both kidneys. As regards the heart there was recent and extremely slight endocarditis of the pulmonary cusps. There were no definite vegetations, merely a roughening presenting a hirsute appearance; there was no endocardial injection. A firm fibrous nodule was found attached to one of the chordæ tendineæ of the tricuspid valve. Both mitral and aortic valves were healthy. The spleen was two or three times the normal size, soft and friable; it contained no infarcts. The sphenoidal and ethmoidal cells were opened and found to be healthy.

Remarks by Dr. MAYNARD.—The chief feature of note in the treatment of the case was the absolute failure of the various sera to bring about any improvement. The infection would appear to have been one of staphylococcus albus only and possibly the failure was due to the fact that there is no antiserum made for this organism; on the other hand, it may be that a sufficiency of antistaphylococcic serum was not given and that it was not given early enough in the disease. After perusing the very valuable lectures of Mr. L. S. Dudgeon and Mr. P. W. G. Sargent, recently published,[1] one would suppose that the white staphylococcus was almost a benign organism, at all events as regards the peritoneum, and possibly this is so, more particularly as compared with other peritoneal pyogenic organisms; that it may, however, exist in a very highly virulent form also is shown by this case in which it was cultivated both ante and post mortem from the blood and was apparently *per se* the cause of death. Normal horse serum was used solely on account of its reported efficacy in a case of septicæmia mentioned to us and in lieu of any better possible remedy. The point of entry of infection was probably the nose, as, though a most thorough search for other entries was made, none was found.

Remarks by Dr. BUSHNELL.—There have been several fatal cases of septicæmia at the Sussex County Hospital due to infection by staphylo-, strepto-, and pneumo-coccus in which the path of entry of the micro-organism could not be precisely demonstrated; in these the serous sacs were more especially affected, also the meninges, and in the case now reported the lungs contained numerous foci of suppuration. In this case the presence of the staphylococcus in the blood ante and post mortem, in the nasal discharge and in the sputum during life, and in the spleen, lungs, and kidneys after death, is evidence of the infection being staphylococcic; further, there were no pneumo- or gono-cocci in the blood cultures, nor streptococci in plate cultures. This with the absence of bacilli and the presence of staphylococci in numerous sections of the viscera prepared by Weigert, Gram, and Löffler's methylene blue methods show the infection to be staphylococcal. There is strong probability, too, that the respiratory tract was the path of entry. The lack of success in the treatment by antiserum may lie in the fact pointed out by Pröscher,[2] that variations in races of staphylococci occur; thus it is important that the strain from which the serum is prepared should be identical with that causing the suppuration. The use of a vaccine of sterilised staphylococcal cultures, even if it were administered at the periods recommended by Dr. A. E. Wright[3] and after estimating the phagocytic power of the blood by Leishman's method,[4] would not be likely to prove of any therapeutic service in such an acute case as this. The absence of leucocytosis, in the presence of such grave infection and after the exhibition of hetol, would be associated with diminished phagocytic and bactericidal protective fluids in the blood. Success in treatment of such conditions appears to be in the direction of stimulating or

[1] THE LANCET, Feb. 25th, 1905, p. 473.
[2] Deutsche Medicinische Wochenschrift, 1903, No. 2; Hewlett, Serum Therapy, p. 187.
[3] THE LANCET, May 9th, 1903, p. 1299.
[4] Brit. Med. Jour., 1902, vol. i., p. 73.

supplementing such bodies, whether "immune body" or "alexin," and phagocytosis, by direct or indirect measures. The necessity for the prevention of such illnesses by means of general hygienic measures and special precautions against infection is not apparently yet recognised by the public.

ELEMENTARY STATE SCHOOLS AND THE SPREAD OF CONTAGIOUS DISEASES OF THE SKIN.[1]

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I DESIRE again to call attention to a matter which is manifestly one of great importance to the public as well as to the medical practitioner. In a joint paper by Dr. Alfred Eddowes and myself read in the Section of Preventive Medicine of the congress of this institute which was held at King's College, London, in 1894, it was pointed out that "now that school attendance is compulsory and that the clean and well-cared-for children of respectable families living in poor neighbourhoods often have to associate with those of the dirtiest, most careless, and most diseased classes of the community, it seems to us a moral duty that all reasonable precautions be insisted on (and carried out) by the authorities in order to minimise the risk of infection from the diseased to the healthy. ..... Numerous instances have come to our knowledge in which not only has a skin disease been contracted in a board school but it has been carried home by the child and passed on to the previously healthy brothers and sisters."

A continued and very extensive experience of the treatment of diseases of the skin at two large London hospitals leads me thoroughly to endorse those remarks made 11 years ago; and I have no hesitation in now saying that we must regard the elementary State schools in London as largely responsible for the spread of such contagious diseases as ringworm, pediculosis, scabies, impetigo, &c., and of many perhaps more grave affections which may be their sequelæ, not only directly among the children of the poorer classes but indirectly among those of the well-to-do. The facts appear to be so obvious that it is astonishing that the authorities have not sufficiently realised their responsibilities in this connexion and have not adopted more efficient measures for preventing the contamination of healthy children. I do not deny that the late School Board and the present education department of the London County Council have given, or are now giving, some practical attention to the subject, but I maintain that the methods and precautions hitherto adopted by those authorities have been, to say the least, very defective and inadequate. It seems to me that one of their greatest mistakes is their attempt to shift the responsibility upon the wrong shoulders; they have not themselves had the children properly inspected, but they have put the onus of investigating such cases upon others, the result being that numbers of diseased children are still attending the schools and infecting other children.

Under the present system if a poor child acquires ringworm, for instance, he or she may attend a school for a considerable period without anyone being any the wiser and be all the time quietly disseminating the affection. When it is a typical case and something wrong is at last observed by the teacher the child is sent home and the parents are told that they must get an official form filled up by a medical man. An instance in illustration of this has just occurred at Blackfriars. A mother brought two children with well advanced ringworm and was asked how long they had been affected. She replied that "she observed their heads 'scurfy' about two months ago and then got some ointment for them from a chemist." Had they been attending school? "Yes, until this morning, when they were sent home by the teacher." She did not know until that day that they had ringworm. It will not be surprising if other cases crop up from the same school. If the parents are very poor they may not be able to afford the fees of a general practitioner and their usual course is to bring the child to a hospital—often with a cool message from the elementary school teacher or inspector that the hospital medical officer must fill up the official school form. It has been my invariable practice to decline to do anything of the sort, and I venture to think that if all medical men in my position adopted the same course the school authorities would have been long before this brought to their senses and have ceased from attempting to "sponge" upon the honorary officers of a hospital and from trying to get the latter to do work which is really on behalf of the school and not for the individual benefit of the poor little patient. I do not wish to be misunderstood: if a child is brought to the hospital really ill or suffering from a complaint which would be made worse by going to school—i.e., if attendance at school would be detrimental to the child's health—I readily give a certificate (our own hospital one) to that effect. But as regards ringworm and some of the other cases to which I have alluded, it is for the sake of the school—in view of the risk of infecting other children—that the child should not attend. Children so affected may be, and usually are, perfectly well in every other respect; school is good for them; and the only reason why they should not attend is that they may, and probably will, communicate the disease to others.

I think it will be generally agreed that it should be the bounden duty of the education department to protect healthy and clean children from being infected at school with the above-mentioned loathsome diseases. I may even go so far as to say that should it be proved that a child has contracted such a disease at the school the necessary treatment for cure as well as the preliminary investigation ought to be at the expense of the department. I have often wondered indeed that some indignant and justly aggrieved parent has not brought an action at law and claimed damages for the injury done by the introduction of such a disease as ringworm into his house through being forced to send his child to a school in which there are cases of the kind.

What is the remedy? Obviously the most important and essential prophylactic measure would be the frequent systematic and periodical examination of all children attending the Government schools by competent medical officers especially engaged for that purpose by the department. This was recommended many years ago but was evidently not thought worth adopting by the late School Board probably on the ground of expense; the institution of continuation schools and the other developments—ornamental or otherwise—of Mr. Forster's original Act were no doubt considered of greater importance and more worthy of the ratepayer's money. I understand that the London County Council is actually going at last to increase the at present ridiculously inadequate medical staff of its education department and to employ a number of medical men to look more closely after medical matters in the London schools—it is to be hoped for the benefit of the children who have to attend the State schools. This, at any rate, is a satisfactory although tardy move in the right direction. That august body, however, still seems to think that it has the right to demand the gratuitous services of hospital medical officers, as is evidenced by a letter dated July 13th, 1905, now before me, addressed to the secretary of one of the hospitals to which I am attached.

It seems to me high time that medical men should make a stand against the system hitherto in vogue in the department and that the public should know the risks their children are being forced to incur through the lack of adequate medical supervision of the elementary schools.

Henrietta-street, W.

[1] A paper read at the London Congress of the Royal Institute of Public Health on July 20th, 1905.

THE STAINING REACTIONS OF THE SPIROCHÆTÆ FOUND IN SYPHILITIC LESIONS.

BY LEONARD S. DUDGEON, M.R.C.P. LOND.,
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(Preliminary Note.)

Dr. Schaudinn and Dr. Hoffmann have pointed out the extreme difficulty which they have experienced in staining the spirochætes which they have recently shown to be present in various syphilitic lesions. These authorities have, therefore, recommended a special stain which they have

found to be the only one that has yielded positive results. It is for this reason that I wish to bring forward the results which I have recently obtained by employing a slight modification in the strength and method of using Leishman's stain.

A patient suffering from syphilis recently attended the out-patient department of St. Thomas's Hospital. I succeeded in obtaining a large quantity of fluid from a condyloma situated in the region of the anus by using severe local pressure. A number of cover-slip preparations of the exudate were made and these were stained as follows. I used a sample of Leishman's stain, such as I employ for staining bacteria. 1. A few drops of a 1 per cent. solution of Leishman's powder (Grübler) in absolute methylic alcohol (Kahlbaum's) were poured on to the surface of the film preparation, just sufficient to cover completely the whole of the cover-slip. This was allowed to fix the specimen and to stain it for 30 minutes. 2. Double the volume of distilled water as to stain was now run on to the surface of the cover-slip and the stain and water were carefully mixed. The staining was further continued for five minutes. 3. The diluted stain was poured off and distilled water was run on the cover slip and allowed to remain on for one minute. 4. Surplus stain and any precipitate were now removed by squirting some distilled water on to the film from a pipette. 5. The film was then dried with cigarette paper and mounted in Canada balsam.

I obtained excellent preparations of the organism by means of the above process and was able to observe a large number of spirochætæ in most of the film preparations; the organisms could be recognised quite distinctly, however, by staining according to Leishman's own method. Its morphological characteristics corresponded to the type described by Dr. Schaudinn and Dr. Hoffmann as the spirochæta pallida. It was found to be extremely delicate, but perhaps the most noticeable point concerning this organism is the typical corkscrew arrangement; in some cases from 10 to 15 spiral turns were seen. Each spiral was also found to be defined very sharply. Some spirochætæ, however, were thicker, showed polar staining with Leishman's stain, and did not have the typical corkscrew characters of the spirochæta pallida. This type probably belongs to that described by the above-mentioned authorities as the spirochæta refringens.

It is quite possible that with a little trouble still better results can be obtained with Leishman's stain, which has already been shown to be one of the most valuable stains in use at the present day.

Note.—Since the above account was written further results have been obtained with film preparations of the exudate from "mucous patches" in a case of secondary syphilis, under the care of Mr. P. W. G. Sargent.

St. Thomas's Hospital, S.E.

TWO CASES OF ADDISON'S DISEASE AND THE EFFECT OF THE ADMINISTRATION OF SUPRARENAL EXTRACT.[1]

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As the effect of the administration of suprarenal extract in the treatment of Addison's disease is still *sub judice* I think that the results obtained by the administration of this drug in two cases of that disease which have recently been under my care will be of interest.

CASE 1.—The patient, aged 18 years, was admitted into the Stanley Hospital on Sept. 7th, 1903, complaining of pains in the epigastrium, vomiting, and weakness. His pulse was extremely small and his face was sallow. There was no history of phthisis or tubercle in his family. The lad stated that he had always been healthy up to the time of the present illness, which began, according to him, two months prior to admission, when he was troubled with severe aching pains in the epigastrium following food but these were relieved by vomiting after each meal. He said that he had lost flesh during his illness and had become very weak; he also noticed that "his skin was yellow."

On admission the patient was found to be a thin but well-developed youth; his face and hands were cold and livid and the temperature was subnormal at from 97° to 98° F. There was a large amount of pigmentation of the skin over the body, but it was especially marked in certain regions—namely, *in the exposed parts*, the neck as far as the collar where it ended abruptly, and the back of the forearms where it gradually shaded off; *in the normal sites* there was deep pigmentation of the axillæ, the nipples, the penis, and the scrotum; and *in the parts exposed to pressure*, the lumbar region of the back, especially the lumbar spines, about the knees, the soles of the feet, and also in two scars on the back of the left forearm. The pigmentation was of a yellowish-brown or copper tint, shading in some regions to a dark brown and reaching a maximum in some small black pigmented spots scattered about the chin, the lips, the back, and the ankles. There was also some copper-coloured mottling on the mucous membrane of the cheeks and gums. There was tenderness in the epigastrium and left hypochondrium on deep pressure, and a distinctly tender spot was found over the eleventh and twelfth ribs posteriorly on each side (three inches from the spine on the right and two and a half inches on the left). The pulse was 80 per minute, extremely small and of very low tension but regular. At no time could a sphygmographic tracing be obtained. The cardiac impulse was absent. There was no superficial dulness and the deep dulness only extended three inches to the left. The heart sounds were clear at all areas but distant. Liver dulness was four inches in the nipple line. Splenic dulness was normal. The patient had no cough and the respirations were 20 per minute, otherwise normal. The urine was acid, scanty, high-coloured, contained urates on standing, and a trace of albumin sometimes. The quantity of urea was relatively greatly increased. The muscular system was flabby but there was not much wasting.

Our first care was to stop the persistent vomiting, so the patient was placed on a very light diet and ten grains of bismuth carbonate were given just before food, with the desired effect for a time. On Sept. 14th extract of suprarenal in five-grain doses was given thrice daily and this was increased to ten grains a few days later. On Oct. 2nd the suprarenal extract was increased to 15 grains and the patient had improved. He had no pain and had not been sick for a week and his pulse was a little stronger. This improvement was maintained until the 19th but he was steadily losing weight, about two pounds per week, and the pigmentation in the mouth was more marked. On that date the vomiting returned with all its severity; he complained of acute pain in the abdomen and in both lumbar regions, pressure under the last rib on each side causing him to jump and cry out. The pain was so intense on the 22nd that he lay curled up in bed groaning; he was very sick and all medicines had to be stopped; hypodermic injections of morphine were given to relieve the pain, and some brandy. The muscular weakness was most pronounced at this time and the deep cardiac dulness was found to have further diminished. The patient gradually became semi-conscious and died on Oct. 25th.

The post-mortem examination was made on the same day and the report is briefly as follows. The body was extremely emaciated, there being marked pigmentation of the skin as noted during life. The lungs were healthy and there was no evidence of tubercle recent or old. The heart was small, the muscle substance being atrophied, pale, and friable; the valves were healthy. The stomach was large and somewhat congested; the bowels were healthy. There was considerable matting of chronic inflammatory tissue in front of the aorta round the cœliac axis and affecting the cœliac plexus, the semilunar ganglia, the terminations of the greater and lesser splanchnic nerves, and extending outward to the suprarenal bodies. Both suprarenal glands were very much enlarged, nodular on the surface, and hard; on section both glands showed numerous caseous and fibrous nodules varying in size from five to 15 millimetres in diameter.

CASE 2.—The patient was a married woman, aged 32 years. It was ascertained that one brother had died from pulmonary tuberculosis. The patient had had eight children, six of whom were alive. With regard to the other two children, one had died from meningitis and the other from diarrhœa. The present illness began two years previously when she

[1] Notes on these cases were read by Dr. Gullan at the Liverpool Medical Institution on Feb. 16th, 1905, when he also showed the second patient.

was, she stated, getting thin, low spirited, and continually fainting; she also had had great pain in both lumbar regions, particularly in the left. As she had a severe attack of vomiting in January, 1904, she applied to the Stanley Hospital and was admitted. She was then noticed to have slight bronzing of the lower half of the face and neck. Her pulse was very small and easily compressible, and she had marked tenderness over both suprarenal bodies. There was general lassitude and her temperature was frequently subnormal, occasionally falling to 97° F. The tongue was coated, the bowels were rather constipated, and vomiting was troublesome. She was placed on light diet and calcium chloride and tincture of nux vomica were prescribed. After three weeks she became an out-patient and has remained so ever since, having been re-admitted, however, on two occasions (i.e., in March and August, 1904). Up to the latter date her condition became worse, the pigmentation was more marked on the face and neck, and also appeared on the backs of the forearms and on the hard palate; she was also more subject to syncopal attacks. On August 5th she was ordered five grains of suprarenal extract four times a day, and this was increased to ten grains and then to 20 grains thrice daily. This treatment was continued up to Dec. 9th with considerable benefit; she lost her lassitude to a great extent, had no fainting attack, her pulse was stronger, she vomited much less frequently, and the tenderness over the suprarenals was not so marked. She also gained in weight. On Dec. 9th she was confined and had a normal and easy labour, the child being healthy. She was then absent from the out-patient department for three weeks and consequently the suprarenal extract was omitted for that time and it is an interesting fact that the symptoms from which she had been free—i.e., fainting, vomiting, and general lassitude—all gradually returned. On Jan. 2nd, 1905, the suprarenal extract was recommenced and the above symptoms steadily abated. She has been taking from 20 to 30 grains of the extract regularly up to the present time with great benefit. On another occasion, however, in April, she had a mild attack of bronchitis when it was omitted for a short period whilst some expectorant treatment was given and then her former symptoms returned and the pigmentation increased. These diminished when she took the extract again. She is now in fair health, has gained in weight, and only on occasions is troubled by vomiting or a syncopal attack, but we notice that if she omits the suprarenal extract for only a few days through not coming to the hospital her pulse is always much weaker and her symptoms aggravated. This case, in the benefit she has derived from suprarenal extract given by the mouth, agrees with the two cases reported by Dr. G. Oliver[3] (though the bronzing has not improved to the extent which appears to have been apparent in his second case), and also with that recorded by Dr. H. D. Rolleston[4] in his admirable Goulstonian lectures. It also illustrates how the treatment must be continued, as laid down by Dr. Rolleston[4] and also that the suprarenal extract must be given in large doses. Dr. E. Lloyd Jones records a case of Addison's disease[5] which was cured by taking 12 tabloids per diem—my patient is taking 18 tabloids per diem.

The special points of interest in these cases are the following: 1. The severity and rapid progress of the disease in Case 1, though the lesion was that of chronic tuberculosis of the suprarenal bodies plus secondary inflammation of the neighbouring sympathetic, and the little benefit derived from the extract. 2. The chronicity of the symptoms in Case 2 and the considerable benefit derived from the suprarenal extract, so that she even easily stood the strain of pregnancy and parturition. These cases certainly lead me to support Dr. Byrom Bramwell's view[6] that those cases which improve on this form of treatment may be due to adrenal inadequacy alone and the remainder are due to an additional lesion (I should like to word it a secondary lesion) of the neighbouring sympathetic. This was the condition in Case 1. But I cannot agree with Dr. Bramwell's suggestion that all those cases which improve have a non-tuberculous lesion (though some of them may have, as the one recorded by him), for it seems quite logical that in the early stage of Addison's disease when of an undoubtedly tuberculous nature (and personally I have not yet seen a case post mortem in which the condition was not of a chronic tuberculous nature) the disorder starts in the adrenal body and may lead to inadequacy of that body before the sympathetic plexuses are involved. At such a stage I believe treatment by suprarenal extract would be most beneficial and if combined with good wholesome diet, fresh air, &c., the disease may be checked or cured; but then if there remains as a result sclerosis of the adrenal bodies the suprarenal extract would have to be continued to supply the internal secretion of the organ probably for the rest of the patient's life. Hence the great importance of early diagnosis and an early trial of this form of treatment in Addison's disease.

Liverpool.

[3] Pulse Gauging, p. 89; Brit. Med. Jour., 1895, vol. ii., p. 654.
[4] Brit. Med. Jour., 1895, vol. i., p. 748.
[4] Allbutt's System of Medicine, vol. iv., p. 536.
[5] Brit. Med. Jour., 1896, vol. ii., p. 463.
[6] Brit. Med. Jour., 1897, vol. i., p. 71.

A Mirror of HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

MARGATE COTTAGE HOSPITAL.

A CASE OF RUPTURED URETHRA AND EXTRAVASATION OF URINE OF FOUR DAYS' STANDING.

(Under the care of Mr. W. GREENWOOD SUTCLIFFE.)

THE accident occurred during a storm in the Bay of Biscay on March 8th of this year; the patient, a Swedish sailor, 35 years of age, was thrown violently, his perineum struck a projecting beam, and he was picked up practically unconscious. The steamer, a homeward-bound eastern trader, carried no surgeon, and beyond getting the man to his bunk the captain could do little for him. A large swelling rapidly developed in the perineum, the scrotum, and the cellular tissue of the penis; there was inability to pass urine and the condition of the patient on his arrival at Margate on March 12th, four days after the injury, was one of extreme exhaustion and collapse. Several attempts at landing him had been made during the voyage up Channel but the weather was too severe to permit it and even here the transfer of the patient was only effected by means of the lifeboat. Dr. C. J. Harnett, who had previously reached the steamer in a smaller boat, superintended the removal and on admission to the hospital the case came under the care of Mr. Sutcliffe. The bladder was found to be distended above the umbilicus, the skin over the left side of the perineum and the inner side of the left thigh was black and gangrenous, and the scrotum and penis were greatly swollen and black but firm and not crackling to the touch. The right side of the perineum was only gangrenous for about an inch outwards to the thigh and the skin of the right thigh was unaffected. The skin over the left thigh outside the area of the gangrenous patch, itself at least six inches square, was of a dusky red hue and the whole thigh down to the knee was tense and swollen. The urethra had obviously been ruptured in the membranous portion as no extravasation had spread forwards into the scrotal tissues or on to the abdomen; the posterior layer of the triangular ligament had probably itself been torn, as most of the urine had found a way into the left ischio-rectal fossa near the rectum and anus and into the subcutaneous tissue of the left thigh. The patient was anæsthetised and put in the lithotomy position; the perineum was incised freely in the middle line and large quantities of clot and infiltrated débris were cleared away; a director was then passed through the rent in the urethra into the bladder and some 50 or more ounces of clear urine were evacuated. Free incisions were then made over the infiltrated area, the gangrenous skin over the inner side of the thigh was cut away, and a large rubber catheter was tied in the bladder through the perineal wound.

Recovery began at once, the patient, a man of fine physique, rapidly passing out of danger. The separation of sloughs was assisted by soaking the patient in a hot bath for several hours daily and the catheter was retained in the

perineum for a fortnight before an attempt was made to re-establish the normal urethra. Then a large steel sound was easily passed down the urethra into the bladder and the catheter was removed from the rapidly contracting perineal aperture. Control over the bladder being soon re-established and the patency of the urethral channel secured by the passage of sounds at intervals of a few days, the patient soon began to pass his urine in increasing quantities through the natural route. The perineal opening gradually contracted to a pin-point aperture and the denuded surfaces soon covered themselves with granulation tissue and healed with amazing quickness. The patient left the hospital soundly healed on June 3rd, a No. 12 steel sound passing easily into the bladder the day before his departure. Beyond a single rigor after the first passage of the sound he had no bad symptoms from first to last and with that exception his temperature was below 100°F. throughout.

Remarks by MR. SUTCLIFFE.—The case is interesting as showing remarkable recuperative powers after a severe injury unavoidably left untreated for several days and as affording a contrast to those instances of extravasation due to stricture or peri-urethral abscess when the urine is septic; in such cases recovery can hardly be expected after 48 hours' soaking of the subcutaneous tissues in ammoniacal urine. In two cases of this injury which have come under my care within a few hours of the accidents I have passed a catheter through the rent at the first operation, but here with a large sloughing mass of cellular tissue the only course was to drain directly through the perineum, and though the urine itself had not spread upwards both the scrotum and penis were greatly swollen with infiltrated blood; indeed, the discolouration had hardly disappeared from the skin of the penis when the patient was discharged.

Reviews and Notices of Books.

A System of Clinical Medicine, dealing with the Diagnosis, Prognosis, and Treatment of Disease, for Students and Practitioners. By THOMAS D. SAVILL, M.D. Lond., Physician to the West-End Hospital for Diseases of the Nervous System; Physician to St. John's Hospital for Diseases of the Skin, London; formerly Medical Superintendent of the Paddington Infirmary. Vol. II.: Certain General Disorders; Diseases of the Skin and the Nervous System. London: J. and A. Churchill. 1905. Pp. 444. Price 8*s.* 6*d.*

IN a review of the first volume of this work, which appeared in THE LANCET of April 25th, 1903, p. 1174, we expressed the high opinion we had formed of the manner in which Dr. Savill had carried out the task which he had set himself. A perusal of the recent volume assures us that on the whole the same high standard has been maintained which was manifest in its predecessor. We then explained that Dr. Savill had approached the subject of clinical medicine from the standpoint of symptomatolgy. This method of procedure is well illustrated by the heading of the first chapter in the volume now under consideration, which runs, "General Debility, Pallor, and Emaciation." In this group might naturally be placed a very large number of varying conditions. Dr. Savill explains, however, that he is merely concerned with those diseases in which a feeling of general weakness and lassitude is the only obvious, or at least the most prominent, symptom for which the patient seeks relief. We cannot altogether support Dr. Savill in the classification which he has adopted. For the practitioner this chapter may be a useful one but to the student it would prove confusing. Many conditions are mentioned the onset of which may be merely characterised by general debility or, in addition, either by anæmia or emaciation, or both, such as tuberculosis, diseases of the pancreas, chronic visceral disease, functional nervous diseases, nephritis, dyspepsia, and obscure abdominal or pulmonary disease. For a description of these conditions the reader is referred to other parts of the work. We think, however, that for the sake of clearness any reference to them in this chapter should have been omitted. Good accounts are given of chlorosis, pernicious anæmia, syphilis, plumbism, leukæmia, lymphadenoma, hæmophilia, malignant diseases, marasmus in children, senile decay, myxœdema, and Addison's disease, conditions which, although differing in pathology, may rightly all be considered under the classification which is here adopted.

The next chapter has for its title "The Extremities." Dr. Savill's method of approaching his subject from the standpoint of symptomatology is particularly applicable to the various disorders which may attack the extremities (nervous affections excluded). The diagnosis of diseases of the joints is frequently a matter of difficulty but by proceeding according to the directions laid down considerable assistance will be obtained in arriving at a conclusion. The chapter on diseases of the skin is an excellent one and contains a large amount of information clearly and concisely given. The various points for investigation are carefully described and we can recommend a close study of Dr. Savill's remarks to those students who are attending the departments for diseases of the skin at the general or special hospitals.

An account of diseases of the nervous system occupies a large portion of the volume. A few preliminary observations are made on the anatomy and physiology of the central nervous system and we agree with Dr. Savill when he says that Professor Waldeyer's neuron scheme, although not regarded by everyone as the most scientific, nevertheless for clinical purposes is the most lucid and practical yet introduced. The clinical investigation which is required in cases of disease of the nervous system is well discussed and it is shown that if every point be taken in its regular order confusion is not likely to arise. The descriptions of the various diseases are good but we prefer the classification usually adopted in text-books to the one which necessarily follows when symptomatology is taken as the basis. The volume ends with an epitome of clinical bacteriology and the examination of pathological fluids. Numerous illustrations are scattered through the work and some of the diagrams aid greatly in explaining the text.

We have found some faults with Dr. Savill's classification of diseases which is founded on symptoms. On the whole, however, we are of opinion that he has succeeded in producing a very useful manual. We do not think that it will replace the other text-books now commonly used by students but as a companion to them it will be found most valuable. By the practitioner it will be found even of more service, for it will doubtless aid him when he is in attendance on a case of which the diagnosis is obscure and in which the physical signs are not well marked.

Clinical Studies: A Quarterly Journal of Clinical Medicine. By BYROM BRAMWELL, M.D. Edin. Vols I. and II. for the years 1903 and 1904. Illustrated. Edinburgh: R. and R. Clark, Limited. Pp. 384 and 392.

THE two books which form the subject of the present review represent the completed volumes for the years 1903 and 1904 of Dr. Byrom Bramwell's *Quarterly Journal of Clinical Medicine.* Certain of the clinical studies which appear in these volumes have, we believe, been published completely or in part in other periodicals or journals and some of them are already well known to a large number of medical readers. These studies, however, do not belong to the well-known series of Wednesday cliniques, the reports of which form the backbone of the author's quarterly journal. To say the least, however, from the point of view of interest these lectures greatly enhance the value of these two volumes.

Dr. Byrom Bramwell has a delightfully easy style of writing and a direct and forcible manner of appealing both to his audience and to his readers. As a clinical teacher we are

disposed to believe that at the present time he has few rivals in this country and certainly no teacher of clinical medicine publishes lectures which make better reading. There is practically no class of medical reader to whom these clinical studies can be otherwise than instructive, whether he be student, practitioner, or teacher. But it is to the practitioner, we believe, that these lectures will chiefly appeal, since they afford him an opportunity of recalling at his leisure memories of that irresponsible assimilation of medical knowledge which distinguished his early educational career as a medical student. For the benefit of those who are unfamiliar with the manner in which Dr. Byrom Bramwell manages his now famous Wednesday cliniques it may be here stated that they are of the nature of demonstrations illustrated by cases, taken down in shorthand and subsequently edited for publication. One of the great features of interest is that the students' answers are reported as well as the teacher's questions. Inasmuch as most of us learn more by our own mistakes and the mistakes of others than by any other means the often incorrect answers of the students impress on our minds the lesson which it is intended to convey. So skilfully are these reports edited that in reading them, in spite of detachment of time and place, we cannot help feeling the atmosphere of the hospital just as we remember it in the days of our youth.

Many of the studies recorded in these volumes, quite apart from their educational value, are weighty contributions to medical literature. For instance, the author's clinical lecture on Aphasia and Will-making has in its medico-legal aspects already become an authoritative document and it very clearly defines the will-making capacities of patients affected with different forms and varieties of aphasia and it describes very lucidly the manner in which wills should be made in the circumstances of defect of speech and the tests to which patients should be submitted in order to ascertain whether they are in a fit mental condition for the testamentary disposal of their properties. Another lecture on Syphilis and Life Assurance which was delivered before the Edinburgh Medico-Chirurgical Society in 1902 must be regarded as among the most valuable contributions to Vol. I. The author gives very strong reasons, which are supported by evidence from his own clinical records, why this disease, contrary to the opinions which are generally held on this subject, must, and does, tend to shorten life and, further, Dr. Byrom Bramwell makes suggestions for estimating the extent to which such lives should be loaded for insurance purposes. In Vol. II. a clinical lecture on Disseminated Sclerosis, with Special Reference to the Frequency of its Incidence and to its Etiology, is well worth reading. It is, indeed, a most important contribution to the literature of this disease and, further, it affords statistical facts with reference to the distribution of the disease respectively among hospital and private patients. Practitioners whose knowledge of some of the rarer and, indeed, of many of the commoner diseases has begun to grow rusty will find the reading of these volumes a very easy and pleasant method of reviving their information on the forgotten points. Among the common complaints which have formed the subject of the author's Wednesday cliniques and are reported in these volumes we may mention Addison's disease, renal calculus, aneurysms, locomotor ataxia, and neurotic vomiting. The studies which deal with these commonplace and every-day diseases are, by the genius of the author, made really interesting and incidentally in discussing these diseases all the newer methods of diagnosis and treatment are referred to, special emphasis being laid on the value of hæmatology and serum-therapeutics in this connexion. Among the rarer diseases which are illustrated in these volumes are examples of pancreatic infantilism, idiopathic infantilism, achondroplasia, and an anomalous or, as the author prefers to call it, a "fruste" case of exophthalmic goitre. Ichthyosis appears to be a favourite subject with Dr. Byrom Bramwell and it is discussed in various studies from several points of view, both singly and combined with other diseases. The author is particularly fond of referring to the influence of constitution and environment on the character manifested by different diseases—that is to say, on the polymorphic character of disease under different conditions—and ichthyosis is a disease which well illustrates this point. Other conditions which are frequently referred to in these volumes are epilepsy, migraine, and chorea, a group of diseases which possess many pathological features in common.

It is impossible to speak adequately of the merits of these two volumes but sufficient has, perhaps, been said to induce practitioners who desire to keep themselves abreast of the modern evolution of medicine to read these volumes at their leisure.

Report on Dourine in Different Breeds of Equines, together with an Account of Vesicular Exanthema and Piroplasmosis which occurred as Complications. By ALFRED LINGARD, M.B., M.S. Durh., D.P.H. Cantab., Imperial Bacteriologist to the Government of India. With 16 illustrations. Calcutta: Office of the Superintendent of Government Printing, India. 1905. Pp. 84, with Appendices pp. xcix.

THIS valuable report deals with dourine as observed in English and Australian thoroughbreds and in Arab stallions which exhibited the disease in chronic, latent, and recent forms. The course of the malady as seen in equines of different breeds in India, together with a short summary of the life history of the trypanosoma, is recorded. Dr. Lingard during his inquiry encountered not only dourine but two other forms of disease—viz., a vesicular exanthema, an infectious sexual disease of horses occurring in an epizootic form, which in its severe form has been mistaken for dourine, and piroplasmosis in which an organism was found in the red corpuscles akin to, but not identical with, that producing hæmoglobinuria in Texas fever.

Dr. Lingard first gives a *précis* of the cases of spontaneous or naturally contracted dourine in stallions observed at the Babugarh Depôt and at Bareilly, and of experimental cases of dourine in equines, dogs, rabbits, and guinea-pigs. He next proceeds to the facts bearing on the etiology of the disease. As regards the period of incubation, this was found a most difficult matter to obtain accurately in spontaneous cases of the disease, but experimental cases showed that if dourine is suspected in any given equines the veterinary surgeon ought to be on the alert any time between the tenth and fiftieth day after the date of the primary covering. There are certain symptoms appearing in the early stage between covering or inoculation and the eruption of the first cutaneous plaque which can help the observer in his diagnosis, such as congestion of the vaginal mucous membrane and the formation of vesicles, more or less persistent tumefaction of the labia, and swelling and œdema of the vaginal mucous membrane. The simultaneous occurrence of all of the above symptoms should lead the observer to suspect a case of dourine. The period between the covering or inoculation and the appearance of the first plaque is variable both in stallions and mares, especially in the former. Until the plaques appear, in the large majority of cases it has been found that the disease has not become generalised but the materies morbi is lying dormant in some region of the body. Thus in some cases the disease has remained latent for more than 12 months. In other cases only 34 days elapsed between the date of covering and the eruption of plaques. In general, however, it is concluded from the experiments that the length of time between the covering or inoculation and the appearance of the primary plaque varied between 34 and 34 days. The plaques again were found to appear during a period varying from

17 to 313 days. Their commonest sites were the neck, chest, abdomen, croup, and shoulders, whilst in some cases they were more or less localised in some particular region. The various forms that the plaques assume are well described; there were in 443 plaques in equines 313 circular and 130 oval or irregular. In size, where few they are fairly large, and where numerous they are smaller. They may vary when circular from 0·5 to 5 inches in diameter, and when oval or irregular from 0·75 by 0·5 to 8 by 5 inches. Respecting the length of the individual paroxysms and intermissions, the shortest period of a paroxysm was 24 hours and under, while the longest was four days. The shortest period of an intermission was one day and the longest was 136 days. As a rule the plaques only appear once but in a certain percentage of cases they reappear on the same spot. Weakness in the loins and paraplegia were found to attack stallions less frequently and at a later date than mares. Not infrequently a stallion may exhibit for a long time a symptom pointing to dourine—viz., swelling of the sheath—but an absolute diagnosis cannot be arrived at till further symptoms have developed. In these cases Dr. Lingard recommends bleeding, as loss of blood will bring out the eruption of plaques and thus much time and expense will be saved.

With regard to the diagnosis between surra and dourine, the chief points of distinction are that in surra the paroxysms are usually accentuated by the manifestation of well-marked conjunctival petechiæ, high fever, and the presence of large numbers of hæmatozoa. The disease is an acute one, being fatal within two or three months; the spleen is always enlarged and the vulva and vagina are rarely implicated. In dourine, on the contrary, there is a complete absence of conjunctival petechiæ, the temperature rarely exceeds normal limits, and the protozoon may be only present in small numbers and undiscoverable. The disease is essentially chronic, death being rare before six months. There may be no perceptible enlargement of the spleen and the vulva and vagina are affected.

With regard to the period of the disease during which the trypanosoma could be discovered in the vaginal mucus of the affected animal, it was found that it could be observed as early as the seventeenth or eighteenth day after the covering. Lastly, as regards the exciting causes bringing about a primary or further eruption of plaques, it was found that certain depressing conditions due to fatigue, from whatever cause, would act thus.

The next section of the report deals fully with the symptoms. These are referable to (1) the genital organs, (2) the skin, and (3) the nervous system. They in the first phase are seen to differ in the stallion and in the mare. The skin manifestations are those of plaques, disseminated urticaria, and an eruption of small vesicles. In the last phase of the disease the animal suffers from progressive emaciation, weakness, and anæmia. Paraplegia finally sets in and then death ensues from exhaustion or pulmonary complications. Towards the end hæmaturia or hæmoglobinuria may supervene. Next follows a section on the diagnosis of the affection considered in its clinical and in its microscopical aspects. Clinically, the appearance of the plaque is the most important fact. An excellent table of the comparative symptoms of surra and dourine is given.

With regard to the duration of the disease in India Dr. Lingard has found it still in an active state after an interval of three years from the exhibition of the first symptom. The mortality has been 30·77 per cent. It is greater in mares than in stallions and the disease runs a more rapid course in imported than in country-breds. As regards treatment no satisfactory measure has as yet been found. Dr. Lingard has proved experimentally that the trypanosomata of dourine and surra may be cultivated *in vitro* but sufficient time has not yet elapsed to allow of experimental inoculation being made with cultivations far removed from the initial virus. In this method would seem to lie the only chance of curing the disease. For controlling the disease in the matter of prophylaxis, the affected animal must be protected from flies which carry the contagion and the stable floors must be kept clean and disinfected.

Space will not permit us to enter into the remaining features of this lucid report; the reader will find some excellent observations on the trypanosoma of dourine, on the post-mortem appearances, on the vesicular exanthema of horses, and on piroplasmosis. The book is illustrated by some excellent plates. The whole work represents an immense amount of labour and is worthy of the author. He is sincerely to be congratulated on the result of his labours.

A Revision of the Anophelinæ. By Lieutenant-Colonel G. M. J. GILES, F.R.C.S. Eng., &c. London: Bale, Sons, and Danielsson. 1904. Pp. 47, with 1 plate and 13 figures in the text. Price 2*s.* 6*d.* net.

As its sub-title informs us, this pamphlet is a supplement to the author's "Handbook of the Gnats or Mosquitoes" and it essays to bring up to date our knowledge of the sub-family anophelinæ. Lieutenant-Colonel Giles is working in friendly rivalry with Mr. Theobald, to whom has been intrusted the duty of studying the British Museum collections of these dipterous plagues and who is continually bringing out memoirs and additional records concerning the immense variety of species of culicidæ. The great rapidity with which this line of investigation is being pursued at the present time will, we fear, be the cause of a good deal of confusion in the future as to the limits of species and genera. A cool and even armchair revision of the accumulated facts will be the duty of some specialist by-and-by. In the meantime it is plain that these "matériaux pour servir à l'histoire" will form the groundwork of future knowledge of the family culicidæ. Lieutenant-Colonel Giles himself is a little sceptical as to the real existence of the 96 species of anophelinæ which he duly records and observes in his prefatory remarks that when the study of the larvæ has advanced to a higher pitch a large number of reputed species will have to be dropped as mere synonyms. To the systematist only secondarily interested in the germ-carrying powers of mosquitoes the infinite multitude of species and their diverse geographical distribution are at present somewhat of a puzzle. All this requires careful sifting out and cases of occurrence of apparently the same species in the most widely separated localities must be checked by criteria which will probably ultimately be arrived at. At present the general opinion will be that there is not much relation between classification and distribution. In this pamphlet Lieutenant-Colonel Giles deals only with matters of classificatory interest and the value of his diagnoses of genera is largely increased by the clear figures of generic characters with which he begins the brochure.

LIBRARY TABLE.

An Introduction to Midwifery: A Handbook for Medical Students and Midwives. By ARCHIBALD DONALD, M.D. Edin., Gynæcological Surgeon to the Manchester Royal Infirmary. With numerous Illustrations. Sixth edition. London: Charles Griffin and Co. 1905. Pp. 193. Price 5*s.* net.—This, the sixth, edition of this little work has been carefully revised in the light of the Midwives Act and much trouble has been taken to make clear the conditions in which the midwife may take responsibility and those in which she must call in a medical man. Some extracts from the rules framed by the Central Midwives Board for the regulation, supervision, and restriction within due limits of the practice of midwives are given in an appendix. The author has endeavoured to treat the subject in a manner that will

be found not too elementary, in a guide to attendance on labour, for the student and at the same time not too advanced for the more intelligent class of midwives. The first chapter is intended for the midwife alone. The book is well written and well illustrated and fully deserves the measure of popularity which the former editions have enjoyed and which, we think, will be continued to the present one.

The Oxford Shorthand. Dover: The Oxford Shorthand. 19th edition. Pp. 36. Price 6*d*.—It is stated that this shorthand was being constructed about the time of the First Great International Shorthand Congress held in London in 1887; that the amount expended upon it now approaches £4000; and that it was awarded the Exhibition Grand Gold Medal in 1889. A number of favourable opinions of the public and the press respecting it are quoted. The system is based on the relative frequency of certain words. Passages, containing in all 50,000 words, were taken from ten standard authors —5000 words from each. At the top of the poll was the word "the" which came 3959 times. Similarly, "of" occurred 2739 times and "and" occurred 2049 times. It was finally found that a list of 280 words accounted for nearly four-fifths of the 50,000 words. The list of outlines of words to be learnt was therefore arranged in descending order of frequency of occurrence, the first word being the most important because the most frequent, the second the next most important, and so on all the way down. It is claimed that the shorthand can be written very rapidly. A note at the bottom of an accompanying circular says, "Books only, 5*s*. net, post paid."

Poisonous Plants of all Countries. By A. BERNHARD SMITH. Bristol: John Wright and Co. 1904. Pp. 88. Price 2*s*. 6*d*. net. —This will be found a useful little book of reference dealing not only with plants undoubtedly poisonous but including many plants the toxic effects of which are not very great. After a table of the poisonous principles contained in the plants described, the author gives a short glossary of botanical terms, followed by a description of the poisonous plants classified under the names of the various parts of the body upon which the poisonous principles act, the symptoms produced, and the suggested treatment. An appendix contains a list of reputed poisonous plants. There are two coloured plates of European fungi and a good index.

Merck's Annual Report for 1904. London: 16, Jewin-street, E.C. 1905. Pp. 241.—Merck's Annual Reports fill an important place in pharmacological literature. This recent number represents the eighteenth volume of the series. It is fair to state that the publication consists in reality of an authoritative epitome of recent therapeutic literature and that its references are by no means restricted to the particular pharmacological products of the Darmstadt factories. The present volume gives a brief review of the physiological action and therapeutic results obtained as recorded in the medical literature of 1904. Chapter and verse are given in each case. The book is sent free to medical men on application.

Appendix to Squire's Pocket Companion to the British Pharmacopœia. London: Squire and Sons. 1905. Pp. 35–xxv.—This useful publication enables the practitioner at a glance to acquaint himself with the recent contributions that have been published in regard to drugs and new therapeutic agents. It is, in fact, a supplement to the excellent Pocket Companion published by Messrs. Squire, thus serving to bring that volume up to date. In short, it is a digest of recent pharmacology and as such will be appreciated by the medical practitioner desirous of keeping pace with therapeutic and pharmacological advance.

A Synopsis of the Principal Changes in the United States Pharmacopœia effected by the Eighth Decennial Revision. By W. HARRISON MARTINDALE, Ph.D. London: H. K. Lewis. 1905. Pp. 36. Price 2*s*.—The publication of this synopsis of the recent revision of the United States Pharmacopœia is of interest inasmuch as it brings conveniently to the notice of the medical practitioner and of the pharmacist the chief alterations which have been made. Americans are certainly not behind in therapeutic and pharmaceutical matters and we must often own in this country to taking a leaf out of the American book. The revisions here recorded in a convenient form by Dr. Martindale are instructive and the hints thereby given will doubtless be noted by our Pharmacopœial authorities.

JOURNALS AND MAGAZINES.

Medical Chronicle.—The July number opens with an interesting article by Dr. J. Dreschfeld upon Syphilitic Affections of the Central Nervous System, treatment by mercurial inunction being advised together with iodide of potassium internally. Contra-indications to the use of mercury are a low state of health, great emaciation, and the existence of optic atrophy. Dr. W. E. Fothergill, discussing Variations of the Menstrual Functions in Anæmia, gives an account of recent views as to the nature of this function which is regarded as a means of ridding the female system of nutritive material laid up in excess of the requirements of the organism. When pregnancy occurs these are used for the nutrition of the fœtus. Amenorrhœa may be produced either by a failure of the anabolic process just alluded to or by lack of a stimulating secretion formed by the corpus luteum of the ovary.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 18, 1827.

EVERY man, according to the lawyers, who conducts his own cause, has a fool for his client; and it is certain, that of all persons medical men are the least liberal in conferring the benefits of their professional experience upon themselves. The lawyer grumbles over his losses, without calling the "glorious uncertainty" to aid his cause, holding it, as he does, of course, specially in trust for the benefit of the people alone; and the physician who prescribes for the ailments of a thousand, appears to be regardless of his own, which are, perhaps, fast hurrying him to the bourne of his fathers. Strange as it may appear, that the man who has bought a ticket in the lottery of physic, with all the chances which a knowledge of anatomy and the various collateral sciences may be supposed to give him, should decline drawing, when himself, the preservation of his own existence, is the prize—still more strange is the state of society, when it is pretended and industriously inculcated and believed, that any man wanting these requisites can, by means of medical guides, administer successfully to the sad catalogue of diseases which infest the human frame! The people are deceived. Buchan and the writers on domestic medicine have done more for physicians, than the readers of these sacred tomes are perhaps aware of. Narcissus like, the patient pines over his own image, and gathers fresh tortures at every page of his reading.[1]

PHILOMATIC SOCIETY OF PARIS.

A Female with Three Breasts.

M. Adrien de Jussien related the case of a woman having three breasts, one *situated in the groin*, with which she occasionally suckled. This was the more remarkable, as her mother had three breasts, but all situated on the chest.

[1] Excerpt from review of "*Modern Domestic Medicine, or a Popular Treatise, illustrating the Character, Symptoms, Causes, Distinction, and correct Treatment, of all Diseases incident to the Human Frame; embracing all the modern improvements in Medicine, with the opinions of the most distinguished Physicians, &c.* [The title would fill a page.] By JOHN THOMAS GRAHAM, M.D., Member of the Royal College of Surgeons, &c. 8vo. pp. 564. London, 1827. Published by Simpkin and Marshall."

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

(1) "TABLOID" HEMISINE; (2) "SOLOID" HEMISINE COMPOUND WITH EUCAINE; AND (3) "SOLOID" HEMISINE WITH ATROPINE SULPHATE.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

1. THE tabloid hemisine, the name given by Messrs. Burroughs, Wellcome and Co. to the hæmostatic principle of the suprarenal gland, contains 0·001 gramme of the derivative. This tabloid is convenient for administration by the mouth to arrest gastric hæmorrhage or for the sake of its tonic effect on the heart and vessels. 2. The soloid hemisine compound contains 0·0001 gramme hemisine, 0·08 gramme sodium chloride, and 0·02 gramme eucaine hydrochloride. This is useful for the preparation of a solution for intravenous or intramuscular injection. 3. The soloid hemisine with atropine sulphate contains 0·0002 gramme of hemisine with 0·001 gramme of atropine sulphate and is used as an intravenous injection in cardiac failure or collapse or as an intramuscular injection in post-partum hæmorrhage.

METAKALIN.

(THE BAYER CO., LIMITED, 19, ST. DUNSTAN'S-HILL, LONDON, E.C.)

The antiseptic constituent of metakalin is meta-cresol combined with an alkali. The antiseptic and disinfectant power of meta-cresol is well known and supersedes that of the other cresols. Metakalin is supplied in the form of tablets of 15 grains each and one tablet dissolved in four ounces of water gives a 1 per cent. solution which is convenient for ordinary purposes. The solution also has the advantage of being a distinct detergent.

ITONA BREAD.

(E. G. MOORE, 164, REGENT'S-PARK-ROAD, LONDON, N.W.)

This bread is distinguished analytically by containing a maximum proportion of the nutritive constituents of wheat, while the coarse branny envelope, which is a source of irritation in the alimentary tract, has been carefully eliminated. Moreover, the bread contains an excellent proportion of mineral salts, including the essential natural phosphates. Our analysis showed as much as 7·05 per cent. of proteid in the moist bread, the moisture amounting to 41·50 per cent. The loaf is of a light-brown colour, well baked, and of uniform texture; the flavour is very good and superior to that of bread made from an inferior quality of flour. We have more than once urged the importance of keeping up a high standard of quality of bread such as is represented in this specimen.

WOODHOUSE BLEND WHISKY.

(R. B. SMITH AND SON, PERTH, N.B.)

The analysis of this whisky gave the following results: alcohol, by weight 42·29 per cent., by volume 49·81 per cent., equal to proof spirit 87·29 per cent.; and extractives, 0·09 per cent. As regards secondary products the following were the results given in grammes per 100 litres of absolute alcohol present: volatile acidity, calculated as acetic acid, 108·09; aldehydes, 20; furfural, 2·22; ethers reckoned as ethyl acetate, 56·32; and higher alcohols, 132·40; total, 318·94. These figures indicate a blend as described, the furfural, ethers, and higher alcohols being somewhat under the amount generally found in an all-malt whisky. The spirit gives distinct evidence of age and is smooth to the palate. There was no indication at all of the presence of acrid products. The flavour is delicate. This spirit compares very favourably with specimens of its class.

SPARKLING BILZ.

(THE HARTMAN BILZ BEVERAGE COMPANY, 11, QUEEN VICTORIA-STREET, LONDON, E.C.)

For all practical purposes this is a non-alcoholic beverage containing less than 2 per cent. of proof spirit which is regarded as the limit for revenue purposes. It is pleasantly sparkling, has a bright amber colour, and possesses a peculiar flavour suggestive of fruit essences. There are two qualities, one described as "dry sparkling" and the other as "sweet sparkling," but as regards sugar there is not much difference according to our analysis in the amounts between them. Thus, in the sample described as dry the sugar amounted to 10 per cent. and in the sample described as sweet to a little over 11 per cent. In our opinion both are too sweet for the purpose of a beverage, but of course palates differ. We do not regard it as an ideal non-alcoholic drink.

SILKY FIBRE ASEPTIC HANDKERCHIEF.

(THE TOILET NOVELTIES CO., 5, UNITY-STREET, COLLEGE GREEN, BRISTOL.)

We have previously noticed this excellent material but it has since been improved and handkerchiefs made of it may now be obtained in what is called the new No. 12 pocket-book containing 18 full-size handkerchiefs. The result is a neat case which is not bulky and is quite convenient for carrying in the pocket. The material has a silky lustre and touch and its texture is rigid enough for the purpose in view. The handkerchiefs are treated in the course of manufacture with an odourless antiseptic and they contain nothing but the silky fibre. When soiled—and they are very absorbent—they may be burnt or even disposed of down the sink as they readily disintegrate in water and therefore are not calculated to choke the pipe. Their use, of course, in influenza, common colds, and tuberculosis of the respiratory organs, and their subsequent destruction by fire is an eminently hygienic measure.

(1) PLASMON BLANCMANGE AND (2) PLASMON CUSTARD POWDER.

(INTERNATIONAL PLASMON, LIMITED, FARRINGDON-STREET, LONDON, E.C.)

Many custard powders and blancmange powders when prepared result at their best merely in a starch jelly which in no way represents the nourishing properties of a genuine custard. A proper custard at any rate should be made from eggs and milk and then it is an article of decided nutritive value and appetising quality containing a good proportion of proteid. In plasmon custard the proteid is represented by milk proteid, so that probably the resulting preparation is of decided nourishing value. Plasmon custard powder, according to our analysis, contains over a fourth of its weight of proteid and plasmon blancmange over a fifth of its weight of proteid. The preparations therefore are a distinct dietetic advance on the custard or blancmange which contains little else than starch.

KASTILIS.

(CHARLES BILLING, 43, HANLY-TERRACE, ENFIELD LOCK.)

Theoretically, ordinary borax is an acid borate of soda, just as bicarbonate of soda is an acid carbonate of soda, but, as is well known, borax is decidedly alkaline to litmus test papers, boric acid in fact having a very feeble acid power. Nevertheless, there is reason for believing that in spite of this feeble acid power borax is not altogether compatible with soap, for when borax is mixed with soap some fatty acids, it is stated, separate. This has suggested the preparation of monoborate, which means saturating the excess of boric acid in borax with soda or potash or both. The resulting solution of monoborate is called "kastilis" which may be incorporated with soap without setting free any fatty acids. The idea seems to us to be sound and certainly an excellent cleansing soap is produced. It has a pleasant, soft feeling when lathered in the usual way and leaves the

skin smooth and clean. It is stated further to be soothing in irritable conditions of the skin.

CRÊME DE MENTHE.

(GET FRÈRES, REVEL, FRANCE; AGENCY, B. LAURIEZ, PARIS, AND 6, FENCHURCH-BUILDINGS, LONDON, E.C.)

For all intents and purposes this is a liqueur. It is a delicately green coloured and somewhat syrupy fluid with an agreeable flavour of oil of peppermint. Analysis gave the following results: alcohol, by weight 23·62 per cent., by volume 28·77 per cent., equal to proof spirit 50·41 per cent.; solid constituents, 43·83 per cent.; and mineral matter, 0·02 per cent. We think the quantity of sugar might be reduced with advantage as practically all the solid constituents consist of sugar, that is nearly 50 per cent. The sugar readily crystallised on exposure of the liqueur to dry air. The liqueur is a pleasant carminative and stimulant by virtue of the spirit and the oil of peppermint contained in it. Oil of peppermint, moreover, has decided antiseptic power, so that it serves as an anti-fermentative in dyspepsia.

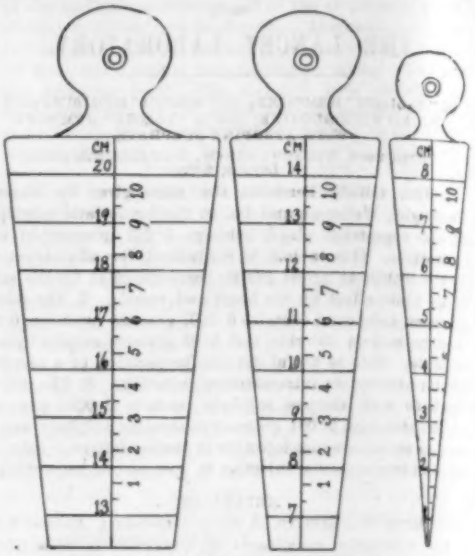
THERAPEUTIC YEAST.

With reference to a notice which appeared under the above heading in THE LANCET of June 17th, 1905, Professor E. Jacquemin of Malzèville, near Nancy, who introduced the pure grape ferment there described (Messrs. Cooper and Co. of 80, Gloucester-road, London, S.W., acting as agents), issues in a communication which has reached us a warning note to the medical profession as to imitations which he states are being offered. He emphasises the importance of employing for therapeutic purposes the pure ferment of the grape only and states that neither the Pasteur Institute nor the late M. Pasteur has been, or is, in any way associated with these products, as might be implied from the way in which the name of the late distinguished *savant* is being connected with them.

New Inventions.

CONES FOR MEASURING THE CIRCUMFERENCE OF ORIFICES.

IN the course of post-mortem examinations occasions arise when one has to measure accurately the size of orifices in the heart and elsewhere. In the Royal Infirmary of Edinburgh cones indicating the diameters in inches have been used for many years for this purpose. These are admittedly unsatisfactory, as in calculating the circumferential measurements from the diameters any error which has crept in, for example, through stretching of the orifice, is multiplied 3¼ times. Other means have been adopted—e.g., metal balls of different sizes, and I believe that on the continent cones similar to those I figure have been employed, but I have been unable to obtain either specimens or descriptions of them. Professor W. S. Greenfield of Edinburgh has a cone of this kind which was made for him 25 or 30 years ago, but owing to its wide angle and close markings it is somewhat difficult to use. To supply this want and to obviate these objections I have designed the cones figured in the sketch which is drawn to a scale of one-half the actual size. The sides of the cones are inclined to each other at an angle of 12°, this facilitating their introduction and making for accuracy in the measurements taken. The transverse lines drawn round the cones indicate circumferential measurements in centimetres. These lines are one and a half centimetres apart. To show this a line divided into centimetres is drawn from base to apex of each cone crossing the transverse lines. A longitudinal scale is thus furnished which is useful in localising exactly the site of constriction, for example, in funnel-shaped openings. On the other side of the longitudinal line marks were introduced in the case of the first cones made, dividing the distance between the transverse lines into fifths, thus enabling circumferential measurements to be recorded in fractions of centimetres if required. These have been omitted in the sketch. I have tested the various measurements and find them to be very accurate. The cones are solid, being made of boxwood.



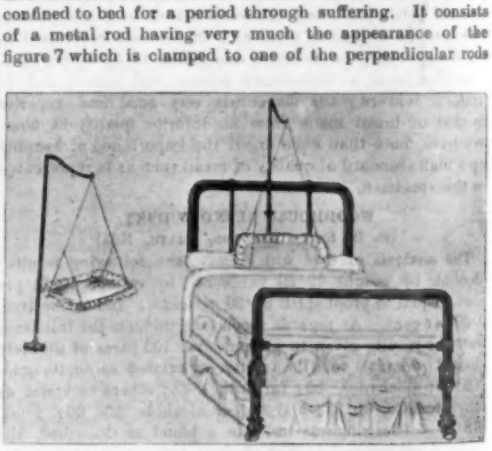
Cones for measuring circumference of openings.

I have to thank Messrs. Archibald Young and Son, Forrest-road, Edinburgh, for the care and patience with which they have carried out my designs and also for furnishing the block illustrating this note.

THEODORE SHENNAN, M.D., F.R.C.S. Edin.,
Pathologist at the Royal Infirmary, Edinburgh.

THE GRAHAM HEAD AND SHOULDER SUPPORT.

WE have received from Mrs. Frances Furnivall, of 13, Fawe Park-road, Putney, an illustration and short description of a head and shoulder rest which, she states, can be adjusted to any form of bedstead in a few minutes and affords rest and ease to the bedridden and to those confined to bed for a period through suffering. It consists of a metal rod having very much the appearance of the figure 7 which is clamped to one of the perpendicular rods



at the head of the bedstead. From the projecting portion or "head" of the 7 depend two inverted Y-slings holding a support for a pillow. This device no doubt allows of easy movement of the head but we have not tried the apparatus itself. The price of the head and shoulder rest is £1 1s.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT LEICESTER.

THE SECTIONS.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

WEDNESDAY, JULY 26TH.

The discussion on the papers of Dr. W. MILLIGAN, Mr. E. B. WAGGETT, and Mr. T. G. OUSTON on

The Lines of Treatment in preventing Acute Middle-ear Suppuration from becoming Chronic

was continued by

Mr. R. LAKE (London) who said that the efficiency of a perforation for drainage depended upon its size and site. He was in favour of free incision of the drum before marked bulging occurred. He would not operate upon the adenoids when the ear disease was acute.

Dr. G. W. HILL (London) agreed with Mr. Waggett that the acute cases got well when treated. He (Dr. Hill) incised the membrane when bulging and afterwards performed politzerisation.

Mr. L. A. LAWRENCE (London) considered that amongst hospital out-patients a large number of acute cases became chronic through the treatment not being carefully carried out by the patients.

Dr. W. JOBSON HORNE (London) was inclined to the view that a large number of cases of middle-ear suppuration were chronic *ab initio*. He based this opinion upon the results of a bacterioscopic investigation conducted post mortem on subjects free from ear disease. In the middle ear were found organisms of a non-pathogenic nature; under certain conditions these might assume a pathogenic rôle. As regards treatment a free incision of the drum of an exploratory nature might often be avoided by previously withdrawing the contents of the middle ear under all aseptic precautions with a fine and suitable pipette. The results of the puncture would decide the operator as to the necessity of a free incision, and a bacterioscopic examination of the fluid drawn off would throw light not only on the exact etiology of the case but also on the prognosis of the acute condition becoming chronic.

Dr. J. KERR LOVE (Glasgow) knew of no reasons against politzerisation but he did not practise it after paracentesis of the drum. He preferred the dry treatment of acute cases.

Dr. J. DUNDAS GRANT (London) advocated aseptic precautions in performing paracentesis. In acute middle-ear suppuration in children he thought of naso-pharyngeal treatment, and in adults of tympanic treatment.

Dr. HERBERT TILLEY (London) had found that the use of leeches in acute cases led to confusion by the œdema which they induced; it was difficult to decide how much of the œdema was due to the leeches and how much to the mastoid conditions.

Dr. J. MIDDLEMASS HUNT (Liverpool) recommended the widening of the perforation in cases that did not improve.

The PRESIDENT of the section, Dr. F. W. BENNETT (Leicester), in summing up the discussion, considered that knowledge of the subject had suffered through insufficient progress with bacteriological investigations. The dangers from the use of inflation he thought had been over-stated; at the same time he considered that sufficient attention was not paid to keeping the bags used for the purpose in a clean and aseptic condition.

Dr. MILLIGAN, in replying, thanked the members for the attention which they had given and said that he had expected hostile criticism of some of the operative measures which he had submitted.

Mr. WAGGETT, in replying, said that in the routine treatment by general practitioners paracentesis and politzerisation were not called for in every case of earache. On the other hand, paracentesis must not be delayed until "to-morrow morning" if certain conditions called for it; one of these conditions was the presence of true opaque pus in the tympanum. Many speakers had said that politzerisation did no harm. Could it do any real good? He believed that it could, and did, do actual harm occasionally. Experience had given him complete confidence in removing adenoids during an acute muco-purulent catarrh of the middle ear. Many tender mastoids accompanied with fever got perfectly well; but even in the absence of the classical signs of mastoiditis, including dropping of the postero-superior wall of the meatus, a very copious purulent discharge compelled the surgeon to operate or else to risk the patient becoming affected with chronic otorrhœa.

Dr. ALBERT A. GRAY (Glasgow) read a paper on

The Pathological Conditions found in a Subject who had suffered from Deafness during Life.

He said that the individual from whom the temporal bones were removed had suffered from almost absolute deafness and very severe tinnitus for a period of 17 years before her death at the age of 71 years. The patient died from malignant disease of the uterus and in addition to the conditions relative to the cancerous affection the following were noted in regard to the anatomical changes found in the temporal bone and the adjacent structures. The bones of the skull were remarkably soft and the saw went through the calvarium almost as if the bone were of the consistency of hard cheese. The greater part of the temporal bone was also soft in character and the dense ivory-like capsule of the labyrinth was much reduced in thickness. The mucous membrane of the tympanum and Eustachian tube was normal throughout. The malleo-incudal joint was ankylosed on the right side but not on the left. On both sides the stapes was completely ankylosed in the oval window, the ankylosis being bony throughout. In the left membranous labyrinth the changes in the bony capsule were found to have produced distortions in the two limbs of the posterior canal by encroaching on its lumen. The cochlear branch of the auditory nerve was atrophied, at least in the two upper turns of the cochlea. The ligamentum spirale appeared to be of a less dense nature than normal, though this may have been due to old age and not to the disease. In the right membranous labyrinth there was found to be no actual distortion. The ligamentum spirale was atrophied, as was also the cochlear branch of the nerve. There were two masses of calcareous deposits, one in the common limb of the posterior and superior canals and the other in the posterior limb of the horizontal canal.

Dr. W. S. SYME (Glasgow) demonstrated

A Pair of Forceps for Operations on the Maxillary Antrum.

The instrument had been designed by Dr. Syme for the purpose of removing the inner or nasal wall of the antrum of Highmore to permit of sufficient drainage. The forceps were constructed with suitable curves for introduction with the blades closed through the right and left nostrils respectively. They differed from those in use inasmuch as they could be employed for the purpose indicated through the nostril and not through the opening made externally, and were more adaptable for the removal of the inner bony wall down to the floor of the nose.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 26TH.

Surgeon-Lieutenant-Colonel H. W. KIALLMARK (London) was the President of this section and called upon Fleet Surgeon C. M. BEADNELL, R.N., to communicate a paper

On the Disposal of our Wounded in a Naval War.

He stated that some of the suggested methods of dealing with the sick or injured on board a man-of-war in action were: 1. To throw them overboard. 2. To allow them to lie *in situ*, with first-aid dressings or appliances put on by themselves, their comrades, or the medical staff, until a lull in hostilities permits (*a*) the medical officer of the ship to repair on board or on deck, as the case may be, and to administer first aid to the wounded *in situ*; or, if there be no medical officer on board, (*b*) the evacuation of the wounded into another man-of-war, a hospital ship, or shore hospital; and (*c*) an organised transport of the wounded into certain non-protected regions of the ship. 3. To have an organised system of transport *vid* vertical passages to locations specially constructed. 4. To convey the wounded into armoured locations situated in the upper works above the water-line. It was suggested that in a modern action every combatant should wear a life-belt and when incapacitated should be dropped overboard, but to throw an unconscious man into the water was to commit murder, to say nothing of the danger of shock and of sharks. First aid to the injured was taught to practically every officer and man in His Majesty's navy. The dressings applied, the man should be carried below. All small craft would be compelled

to evacuate their wounded at the first opportunity. In their larger ships it had been advised that the wounded should be left lying where they fell, then when a remission in hostilities occurred the surgeons should be summoned from below to administer first aid. Any unprotected part of a ship was utterly impracticable for administering surgical relief to the wounded. To allow a medical officer on deck during fighting was quite inadmissible. He might chafe and fret at being kept below, but below he must be until all shell fire was over. It was not unreasonable to ask for a specially prepared locality in which the surgeon might attend to urgent cases. Ships must have an easily accessible hospital of combat in which it would be possible to perform surgical operations. There was a tacit admission on the part of most naval officers that the wounded must be got down below in some way or another, so why not have a prearranged location laid down in the primary plans of the ship. Given uniform types of vessels and the inclusion of a hospital of combat in the original plans there would be little disagreement amongst medical men concerning the matter. The hospital of combat should, if possible, be double (one forward, and one aft) in the larger vessels, to allow of subdivision of the wounded into urgent and less grave cases. In vessels of a medium size a single hospital of combat must suffice. There must be free and easy means of ingress and egress by vertical passages. Each hospital of combat should be in direct communication with the fighting decks by means of passages distinct from ammunition hoists and protected, if possible, by armour. On the verge of hostilities it is advisable to shift the men into clean clothing so that any shreds carried into their bodies by shell fragments would, at any rate, be comparatively clean. During the fighting those wounded able to walk would proceed to the nearest dressing station; those more seriously hurt should have first aid dressings applied to them on the spot and at the first opportunity should be detruded to the hospital of combat. Throughout an action all watertight doors were closed and were only opened during some of the interregna of battle. Under present conditions the only uninterrupted viaducts between the fighting and protected decks were the ammunition hoists and to use them for the wounded would interfere with one of the most vital conditions of modern warfare, to wit, the rapid and uninterrupted feeding of the guns. "Ye cannot serve God and mammon," and an ammunition hoist could not perform adequately the function of raising projectiles and detru ling wounded. What was wanted was the coöperation of a medical officer with those superintending the construction of the vessels in order to advise upon questions pertaining to the sick bay and the hospital of combat. Another objection urged was that such a hospital of combat would be insufferably hot but much might be done in the way of avoiding excess of heat by insulating the hospital of combat by a layer of cement. Hospital ships were the *sine quâ non* of a modern naval war with its prolonged action, many minor engagements, and vast area of belligerency. To each naval station there should be at least one hospital ship which should be expressly built on the lines of a modern hospital and should be capable of accommodating about 400 to 500 men. It was the urgent duty of the naval constructors to provide well-ventilated, well-lighted, and well-protected hospitals of combat in communication with the upper deck by means of straight passages, allowing of an untrammelled to-and-fro excursion of the apparatus of transport and the rapid evacuation of the wounded from the fighting decks above.

Fleet Surgeon O. W. ANDREWS, R.N., communicated a paper entitled

Arrangements for the Treatment of Wounded in Action on Board H.M.S. "Magnificent" ("Majestic" Class).

He stated that ambulance instruction was given systematically by the surgeon and when reported fit the class was examined by the fleet surgeon. When an action was expected all surgical instruments, dressings, and drugs not required for first aid would be removed to that part of the middle deck generally known as the bag flat. Two dressing stations had been selected, one on the starboard side of the main deck abaft the fore turret and the other on the port side of the main deck before the after turret. As regarded the question of protection, it had been found by practical experience in the present war in the Far East that there was no place in the ship which could be considered safe in action, so that when it was suggested, as had frequently been done, to remove the medical officers "to some place of safety until after the action is over" the suggestion was based on an assumption which was purely hypothetical, as it was not possible for anyone to say which was the safest part of the ship. The conning towers were generally assumed to be the safest places in a ship and for that reason were, as their name implied, set apart for those conning the ship or fleet, but no one could reasonably expect the medical officers to be placed here in action, in places barely large enough for the purpose for which they were designed, yet if the medical officers were to be kept as much as possible from risk of injury until after the action was over that was logically their only position if that idea was to be carried out. Although those two principal dressing stations had been arranged with the idea that one medical officer and half of the staff enumerated would be at those places yet it was not desirable or expedient that the medical officers should be confined to those posts. The medical officers should regard those posts rather in the light of rendezvous where they might be found and they should be free to go wherever their services were most urgently required. Every endeavour should be made to render first aid to the wounded where they fell and it was with that idea that so many men were nowadays instructed in ambulance work. Men seriously wounded were liable to have their injuries aggravated and shock and hæmorrhage increased by being moved during an action. Yet fighting being the object and only object of a man-of-war the wounded could not be allowed to interfere with the fighting efficiency on which not only the safety of the ship or fleet but also of the nation depended, so that not infrequently it might happen that men seriously wounded would have to be placed outside a casemate or turret and removed by the bearer party to the arranged stations after having first received an injection of morphine in order that their suffering and pain might be reduced to a minimum. For this last purpose it was recommended that a plentiful supply of hypodermic syringes should be issued in war time for distribution at the discretion of the medical officer to persons instructed in the method of injecting morphine solution and as to the dose which was to be injected. Before going into action the men should wear clean underclothes and clean clothes generally. When an action was over the wounded requiring major operations would be removed to the place arranged for operations or to a hospital ship. The place selected for operations would depend entirely on the damage which had been done to the ship.

Fleet Surgeon THOMAS AUSTEN, R.N., contributed a paper on

The Collection and Distribution of Wounded in a Modern Cruiser Engagement.

He observed that on Feb. 9th last year he had the opportunity of assisting in the treatment of the wounded on board the Russian second-class cruiser *Varyag*, of 6500 tons, 23 knots speed, 12 six-inch guns, and 535 men, as the result of her 40 minutes' engagement with a Japanese squadron. She had been principally opposed by the *Asama*, a first-class cruiser of 9750 tons, 22 knots, 4 eight-inch guns, 14 six-inch guns, and 750 men. The *Varyag* had been forced to withdraw in a badly damaged state and the result might be taken as a fair type of the likely conditions ensuing on a bold cruiser engagement. The *Varyag* was an unarmoured cruiser and the *Asama* was an armoured cruiser. Half an hour after the engagement was over the *Varyag* returned to Chemulpo harbour, listing to port and her after end burning. She had been struck below the water line and her upper decks and fighting tops had been swept by shell fire. None of the men employed below had been injured but of the 150 engaged about the exposed parts 40 had been killed outright and 68 wounded. Shimose—the explosive used in the Japanese service—was as high in explosive force as, if not higher than, any of the modern powders and the shell breaks up into a large number of small fragments eminently suitable against unarmoured ships. The dressing of the wounded went on continuously from 1.30 to 3.45—over two hours—the two medical officers of the *Varyag* and three from neutral men-of-war rendering first aid, examining wounds and removing foreign bodies that were easily got at, cleaning, protecting, and fixing injured parts, and administering stimulants or hypodermic injections of morphine. In that way about 60 wounded were attended to—the remainder not presenting themselves till subsequently. Nothing beyond first aid was attempted, nor was it possible. There had been two surgical stations, but the after one had been abandoned owing to a fire in the vicinity, so that the

forward one was very crowded with wounded. It was also wet owing to the water from the fire-hoses and dark from the failure of the electric light. It was situated on the main deck near the sick-bay quarters. All the instruments had been laid out but those belonging to pocket cases were mainly employed. The wounded had been moved in the intervals of the action. Canvas stretchers and man-handling were employed in taking them to the bases. There was no special appliance for getting cases from the fighting tops. The ship being in a sinking condition had to be abandoned. Taking a modern armoured cruiser of the *Drake* class, where the casemates and barbettes formed the main protection for the fighting material and the side armour and protective deck the main protection to the explosive and propulsive material, and knowing that there were no places behind or below the latter where surgical stations could be established, it was to the shelter of the casemates assisted by the armoured transverse screens that some shelter for surgical stations was looked for. The surgical stations were likely to find most shelter and quiet on the main deck in the vicinity of the casemates. Those who fell on the upper deck and in the barbettes and upper deck casemates must remain there to await the arrival, in the lull of the action, of competent ambulance parties. There would probably be a sufficient proportion of cases able to walk who would keep the stations busy during the heat of the action. There should be two principal surgical stations on the main deck, one forward and one aft, subdivided port and starboard under protection of forward and after casemates and transverse screens; and the material furnishing these should be so simple that it would be easy to move through the armoured screen door to the next group of casemates and so fore and aft to have planned-out places for receiving wounded on either side. The medical staff should be proportioned equally to the fore and aft main surgical stations. Ladder ways on board ship were difficult to negotiate but if a transverse hand-bar was fixed across the extreme ends of the stretcher handles the process of lowering from the upper to the main deck was greatly facilitated. It was too short a distance to need special slings or slides. There had to be a chair or its like for slinging men from the tops when such were manned and a special means of transport out of the narrow and tortuous engine-room spaces and ammunition-supply platforms in case of need. A cruiser after an action should be cleared at once of wounded if she was to be serviceable, for the crew would want all the available space to rest and to reorganise in. If she could not proceed at once to a near base to renew men and material a hospital ship was urgently needed to receive the sick and wounded. Only major operations of the most pressing kind should be attempted on board and the instruments and spare dressings should be preserved below for that purpose. Advanced first-aid treatment should be combined with intelligent collection and distribution of wounded in a modern cruiser engagement. The sooner the enemy's fire was subdued the fewer would be the casualties. Therefore as regarded the wounded the captains of the guns must not have their primary duties interfered with by devoting any of their time to tourniquets and dressing bags. With regard to collection it was not expedient to risk the services of ambulance parties during any part of the fighting. In regard to distribution there ought to be one hospital ship in attendance on every six battleships and every eight first- or second-class cruisers.

Fleet Surgeon A. J. J. JOHNSTON, R.N., considered that in the construction of ships some place should be specially built for the reception of the wounded, well lighted and ventilated, and where operations could be performed.

Fleet Surgeon E. J. BIDEN, R.N. (retired), communicated a paper entitled

Remarks and Suggestions on the Head Dress of Certain Ratings in His Majesty's Fleet.

He discussed the question of the head covering of certain ratings in His Majesty's fleet with special reference to service in the tropics. He referred particularly to the artificer class, including the engine-room artificers, master-at-arms, and ship's corporals, sick berth staff, writers, stewards, and domestics. These men had a blue cloth peaked cap with a white linen cap-cover in the tropics. These men might be seen on shore on duty or on leave at Malta, Singapore, Hong-Kong, and such places with that very poor protection from the sun. It was a question how far that imperfect protection from the sun was responsible for sickness among the men. The health of the navy for 1903 gave 172 cases of heat-stroke in the total force but it was probable that the greater number of these were not sun-stroke but cases of heat-stroke amongst engine-room ratings. The seaman's straw hat might be much more extensively worn; it was comparatively cheap, light (weighing only 10 ounces), durable, and serviceable, being an efficient protection from sun or rain (especially with the brim turned down), it could be easily stowed away, and was smart in appearance.

Fleet Surgeon J. LLOYD THOMAS, R.N., urged the adoption of a thick hat of felt with a wide brim which was readily stowed away and, being pliable, could be turned down over the face, at the sides, or over the nape of the neck as occasion required.

Fleet Surgeon BEADNELL, R.N., communicated a paper on

Some Dynamic and Hydro-dynamic Effects of Modern Small-bore Cylindro-conoidal Projectiles.

He pointed out that the actual work capable of being done by the modern small-bore bullet upon the animal economy was from 1800 foot-pounds to 2800 foot-pounds. The cylindro-conoidal projectile, revolving about its major axis, advanced through the resisting atmosphere with that axis parallel to a tangent to the trajectory at the muzzle. Deformation, which might be due to "stripping," ricochet, or impact with resisting tissues, had the double effect of enlarging the impact area and prolonging the projectile's duration of action. In perforating the tissues the projectile acted like a hammer, driving particles in front of it like a wedge, displacing them laterally, and like a gimlet communicating a part of its rotary motion to them and hurling them into the surrounding tissues like drops of water off a mop. The so-called "explosive" effects were due to sudden enlargement of the impact area resulting from a modification either in the form or motion of the projectile. Many of the "explosive" phenomena were due to such eccentricities of flight as the various "spinning-top" and "pirouetting" motions of the projectile. Surrounding the orifice of ingress, which was circular and smaller in diameter than the projectile, was a white rim, visible at the extreme edges and due to removal by friction of superficial layers of the epidermis. From that orifice radiated minute fissures and if the introverted sectors between those fissures were examined they would be found to have lost their extreme tips. The size of the entrance aperture increased with the range and with the degree of laxity of the epidermis. Ecchymosis around the entrance aperture increased with the range; at extreme ranges there might be extensive bruising but no solution of continuity of the skin. The bullet track was usually the shortest distance between the apertures of entrance and exit; its transverse diameter was smaller than that of the projectile. The aperture of egress was equal to, or slightly exceeded, that of ingress; its sectors were everted and showed no loss of substance except in the case of very high velocities. The entrance aperture was occasionally, and the exit aperture frequently, multiple. The "flat" and "square" bones and the extremities of the larger "long" bones were neatly perforated. The diaphyses might be tunnelled but were more frequently fractured; in the latter case minute comminution together with dispersal of numerous "splinterettes" to a considerable distance occurred when velocity was very high; when it was lower the splinters were larger, less numerous, and closer to the fracture. Many instances were on record of partial or complete recovery after bullet perforations of both cerebral hemispheres. As the bullet entered the cranial space intracranial pressure rose and cerebro-spinal fluid and blood were expelled through the basal foramina. In gunshot wounds of the head brain matter might protrude from both the ingress and egress apertures. After the brief compression of the brain by the projectile there was an increase of bulk due to œdema, which aggravated the cerebral hernia through the bullet orifices. He had never seen brain protruding through an orifice of ingress where death was instantaneous. Lateral pressures of the brain were liable to cause death through a mechanical lesion of the respiratory centre, though the heart continued to beat; hence in certain cases of gunshot wounds of the head it was not impossible that death might be averted by timely artificial respiration. Fracture of the orbital plate accompanied by complete proptosis of the eyeball was not uncommon after bullet perforations of the frontal lobe. Organs like the stomach, the bladder, and the intestines were grievously injured and their contents were scattered far and wide if fluid were present in any quantity; if empty,

however, minute apertures were produced which closed immediately after the passage of the bullet and healed by first intention, thus preventing peritoneal infection. The possibility of more than one coil having been perforated had to be borne in mind in bullet lesions of the intestines. The power of the bullet at close ranges to "drag" its own wad into the depths of the tissues and at long ranges to force in particles of clothing was a factor not to be overlooked in connexion with deep suppuration of the bullet track. Owing to the extremely short contact-time of the modern projectile (about $\frac{1}{2000}$th of a second) the pain consequent upon the actual perforation was often absent, and even so large a region as the thorax might be completely perforated without the person being aware, at the time, of the fact. Local anæsthesia of the bullet track, especially at its entrance extremity, was another characteristic of wounds caused by the modern bullet. External hæmorrhage from the apertures was usually very slight; severe internal hæmorrhage, however, was not uncommon, as the modern small-bore bullet punched holes in the vessels instead of pushing them aside or cutting them completely across as was the custom of the larger, less energetic, and more obtuse-headed bullets in former use.

THURSDAY, JULY 27TH.

Lieutenant-Colonel H. J. BARNES, R.A.M.C. (secretary of the St. Andrew's Ambulance Association), read a paper on

Voluntary Ambulance Wagon Service for Cities.

He suggested that for both the City and County of London an ambulance wagon service should be provided and maintained by voluntary effort on the part of the community. That such a voluntary provision was quite practicable was shown by the continued existence of the accident transport service organised in Scotland by the St. Andrew's Ambulance Association. That was started in Glasgow so long ago as April, 1882, and the total number of patients conveyed since the formation of the service was 64,427 up to May 31st, 1904. The purchase and upkeep of these wagons, hiring of horses and drivers, and the wages of the trained attendants were all defrayed by voluntary public subscriptions; during the year not a single instance of complaint as to the service was made and no case occurred to which attention was not paid. There was some room for improvement in the means of telephonic communication during the small hours of the night, as the street fire alarms were not at present available for the purpose of calling the ambulance, but there were telephones available for the purpose, principally those at police stations, cab offices, shipping offices at the docks, engineering works, and other places open all night. The use of the wagons in cases of accident was absolutely free; cases of sudden illness occurring in the streets or public places were also included in the term "accident." Besides its use in accidents the accident transport service was largely employed by medical practitioners for the removal of cases of non infectious illness to the hospitals for operation, &c. For that, where patients could afford it, a small charge was made. Over-elaboration of the details in equipping an ambulance wagon was to be deprecated, as the simpler and less complicated the fittings the less risk there was of waste of time by their getting out of order and the easier it was to keep the wagon clean and aseptic. The same principle was followed in attending to sufferers—it was not sought to do too much. For instance, the attendants applied the very simplest first-aid dressing to a wound and otherwise interfered with it as little as possible, as the time was so short between an accident being sustained and the arrival at the hospital. Five wagons were kept for the Glasgow transport service and six wagon attendants. The average cost per turn-out, including wages, uniforms, telephones, depreciation, insurance, horsing, storing and repairs, and a proportion of the head office expenses of management, rent, &c., was 8*s.* 2*d.* The only purely voluntary ambulance wagon services in England were those of Accrington, where there was one wagon entirely free to all cases, and Ipswich, where there were two wagons; both were maintained by public subscriptions under the auspices of the local centres of the St. John Ambulance Association and appeared to give every satisfaction. Indeed, it would seem that the fact that an ambulance wagon service was dependent on the voluntary support of the public was a guarantee that the best service possible would be given, as otherwise subscriptions would not be forthcoming. In one supported out of the rates there was a risk of its becoming too "official" and not so sensitive to criticism. The efforts of the Metropolitan Street Ambulance Association would have been more usefully directed towards the establishment of an ambulance wagon service for London maintained by voluntary public subscriptions than in inducing the County Council to undertake such provision out of the rates. There should have been no difficulty in interesting the public in such a scheme if it was properly put before them. With regard to London, there were about 11,600 accidents yearly in workshops and factories there in addition to 10,000 street accidents and any scheme to be in any way complete must take account of the former as well as of the latter. Estimating on the experience of Glasgow and allowing for the greater acreage in London it would require at least 120 horse-drawn wagons to do it efficiently. Motor-driven ambulances might possibly reduce that number to 100, the saving in time being so great.

Surgeon-Major G. A. HUTTON said that it must be left for each town and city to adopt such system as would best suit their needs and requirements.

Captain W. PEMBERTON PEAKE, R.A.M.C. (Vol.), said that voluntary transport depended on the subscriptions of the charitable and there was a possibility of the subscriptions falling off and the work being disorganised in consequence.

Lieutenant-Colonel BARNES said that the voluntary system had not fallen away in Scotland but had lasted for 22 years. Free transport for accidents was defensible but the advisability of further pauperising the population by giving free removal in any case of sickness was very doubtful.

Dr. E. L. JENKINS (late civil surgeon to His Majesty's forces in South Africa, 1900–02) communicated a paper on

The Causation, Varieties, and Treatment of Dysentery on Active Service.

He said that overcrowding, which seemed to be a natural sequence of camp life, was an important cause of dysentery. Other factors, however, operated in conjunction with overcrowding and whenever there was a scarcity of food and its quality was open to suspicion the incidence of dysentery became far greater. During active service additional factors played an important rôle, conditions which reduced the vitality of the system and thus rendered soldiers more vulnerable to the disease. Among those were exposure to alternating periods of heat and cold, bodily exhaustion, lying on damp ground, as well as the mental anxiety incidental to a campaign. There were other conditions which more directly determined infection, such as the pollution of soil and water by fæcal material. Dysentery showed a partiality for the warmer climates, while its frequency and severity tended to increase as the equator was neared. Recognising, then, the infectious nature of the disease it was most important that all dysenteric stools should be properly disinfected and either deeply buried at a distance or cremated. The most important factors in the treatment of all forms of dysentery were rest and diet. The patient should be strictly confined to bed throughout the attack, whether mild or severe. Any movement in bed was to be avoided as much as possible, so the bed-pan must be used to obviate the necessity of getting up to stool. Fresh milk, if obtainable, was always the best form of food and about three to four pints might be given during the 24 hours, in small quantities at a time and at frequent intervals. In the absence of fresh milk condensed milk might be substituted, whilst beef-tea, chicken soup, and certain meat essences proved valuable adjuncts. If ordinary milk was not well digested it might be peptonised or diluted with either lime or barley water. Any liquid food was best given in a lukewarm state, as cold liquids by stimulating peristaltic action tended to aggravate the disease. The first indication was to relieve pain and tenesmus in acute cases, and there was no better remedy than the old-fashioned enema of starch and opium, each enema consisting of half a drachm of tincture of opium, made up with an ounce of starch mucilage. The greatest possible care was required during its administration on account of the tender and sensitive nature of the large bowel. The patient often found much relief from the application of hot flannels steeped in a liniment of opium applied to the abdominal surface, while hot water bottles to the feet and sufficient blankets to insure bodily warmth constituted an

essential part of the treatment. They were next confronted with the necessity of removing foul accumulations in contact with the ulcerated mucous membrane. That might be done by giving gently acting aperients, as half an ounce of sulphate of sodium every hour until copious motions resulted. Another method was the internal administration of antiseptics, but prior to giving any such drugs it was necessary to allay both tenesmus and pain by the free use of opium. Ipecacuanha curtailed the course of the disease in many cases but, on the other hand, required careful use on account of its emetic action. It should be given on an empty stomach and as that drug was much tolerated in dysentery a dose of about 30 grains of the powder was necessary every four to six hours until the motion became yellow and less slimy. Once the acute stage was passed and the digestive powers returned the patient's strength might be well maintained and such additional support as eggs and finely divided raw meat might be allowed. The stage of convalescence being well established, tonics became useful, and to accomplish the necessary improvement in health a sea voyage or change of climate was necessary.

Major N. FAICHNIE, R.A.M.C., contributed a paper on the

Varieties, Causation, and Treatment of Dysentery in the Field.

He said that dysentery might be defined as a disease marked by frequent bloody and mucous stools, fever, tenesmus and griping, together with thickening and ulceration of the mucous and submucous coats of the large intestine. As the cæcum or rectum was most affected, griping and tenesmus respectively were the most prominent symptoms. Dysentery might be: 1. Endemic or amœbic. 2. Sporadic, due to mechanical irritation. In South Africa he had seen several cases of that variety, due to the carrots in the rations; with those men slices of carrots were seen in the stools, so that the ileo-colitis produced was the result of want of mastication. 3. Epidemic or bacillary. That was the commonest form occurring in the field and his remarks were limited to that form. Epidemic dysentery was probably due to a group of bacilli, the dysenteric and paradysenteric, which were allied to each other and to the bacillus coli, their cultural differences being mainly due to the reactions of the sugars. The disease might be contracted: (1) from impure water; (2) from dust carried about by the wind; (3) from infection by flies; (4) from want of personal cleanliness, especially as regarded hands and clothes; and (5) from infection from latrines and seats if there were any. That impure water was not the only cause was shown by the fact that when nothing but tea or boiled water was drunk dysentery still occurred. Treatment was: 1. Preventive. (*a*) Patients suffering from diarrhœa and dysentery should be made to report sick at once so as to prevent the fouling of camps; (*b*) all cases of dysentery should be at once isolated so that their stools might be disinfected; (*c*) latrines should be carefully covered with earth and, if possible, sprinkled with chloride of lime so that the spread of infection by dust and flies might be stopped; and (*d*) before rejoining patients should be made to bathe if possible and their clothes should be disinfected or replaced. 2. Removal from the field. Mild cases might get well in a few days and might be allowed to rejoin their units but more severe cases should be sent to the base or the lines of communication as soon as possible. Patients kept moving about were extremely liable to relapses and were also a source of further infection. 3. Medicinal. Cases varied so much that it was difficult to lay down definite rules. Rest and an equable temperature were essential always. For acute cases the best treatment was that by sulphate of sodium or magnesium: that should be given in as concentrated a form as possible and lukewarm. At first drachm doses might be given every hour till the stools contained fæcal matter and then the interval between the doses increased. When there was no more blood or mucus perchloride of mercury in 45 minim doses with tinctura chloroformi et morphinæ every four hours should be substituted. Bismuth and opium and sulphur and opium were also useful at that stage to stop the diarrhœa. When there was much tenesmus a starch and opium enema gave relief. The earlier the treatment by the sulphates was commenced the more chance was there of its being successful. In chronic cases he did not think sulphate of magnesium was of use. A dose of castor oil might be given occasionally, followed by bismuth or sulphur and opium; if hæmorrhage was very severe oleum terebinthinæ was sometimes useful in checking it. It was when dysentery became chronic that local treatment by the bowel proved most useful. A soft rubber tube might be inserted for 20 inches into the rectum, cocaine ointment having first been employed at the anus. A solution of bicarbonate of sodium, 60 grains to the pint, followed by two or three pints of a solution of tincture of iodine once or twice a day, gave beneficial results. 4. Diet. One of the most important points in the treatment of dysentery was the diet. All food should be given lukewarm, neither hot nor cold. In mild cases milk might be suitable but frequently it was not so. In all except the mildest cases whey or albumin water was far preferable to milk and while the symptoms were acute a total of two or three pints at the most of liquid nourishment in the 24 hours was quite sufficient. When fresh milk and eggs were not obtainable tinned milk had hitherto generally been the only food available. That often produced nausea and vomiting and, in consequence, not only exhaustion but in some cases starvation. In severe cases of dysentery, even if nausea was not produced, tinned milk was therefore not suitable any more than fresh when the latter was available. The question of finding substitutes practicable for use in the field then became an important matter. For that purpose Major Faichnie suggested two—viz., whey and plasmon. 1. Whey. It should be remembered that whey could not be satisfactorily made from tinned milk either by fresh rennet or by rennet tabloid. What could be used for the purpose, however, was alum. If one pint of sweetened or unsweetened milk be heated to 150° F. and 20 or 40 grains of alum be added a milky or pure whey respectively could be obtained; thus, one ounce of dry alum was sufficient to curdle thoroughly ten pints of milk and the resulting whey had no taste of the alum and could be flavoured by lemon or orange or coffee essence if desired. 2. Plasmon. That could be used by boiling one and a half ounces of the dry powder with water to make stock; this, mixed with one and a half pints of barley-water and flavoured as before mentioned, would serve as sufficient nutriment for 24 hours or, instead, by simply whipping and flavouring, half the plasmon stock could be made into plasmon sponge cream and could be given alternately with the plasmon and barley-water beverage. A supply of alum and plasmon should be included in the supplies of the field ambulances for the future. There was no doubt in his mind of the great value in dysentery of digitalis and yet neither in books on materia medica nor in those on tropical medicine had he seen any mention made of the use of that drug in that disease. Alcohol, in his opinion, did not compare with digitalis as a cardiac tonic and stimulant and in dysentery alcohol aggravated the symptoms; therefore the use of digitalis was an extremely important matter, not only on ordinary occasions but especially in the field where so many dysenteric patients might die from exhaustion.

Surgeon-Lieutenant-Colonel G. S. ROBINSON (Scots Guards) (retired) said that the freedom of the Japanese from dysentery was attributed to sanitation, but it was more probably due to their simple diet. The causes in relative importance were chill, water, and food.

Major J. B. BUCHANAN, R.A.M.C., said that the great difficulty of treating dysentery in war at the front was the fact that the patient was always on the move and often did not reach a stationary hospital for ten days or more, during which time it was difficult to carry out a suitable treatment by sulphate of magnesium or ipecacuanha.

Major FAICHNIE said that however important pure water might be they should look for additional causes for dysentery.

Major W. M. O'CONNOR, R.A.M.C. (Militia), read a paper on

The Military Medical Reserve Difficulty.

He said that the late war showed how important it was to be ready as it would be remembered that the War Office had to employ in South Africa alone between 400 and 500 civil surgeons and a large number of orderlies taken from various volunteer societies, such as St. John Ambulance Association, and it could not be said that they were altogether satisfactory. It would seem in time of war that there were three methods to choose from. The first was to keep the Royal Army Medical Corps up to war establishment, which would then, of course, necessitate a smaller reserve in time of war. The second was to have a large reserve of civil surgeons and orderlies from St. John Ambulance Association and kindred societies. The third was by encouraging the formation of a home or limited medical service, offering inducements to the best men of the profession to accept commissions. The first method was too expensive and the second was not one that could be encouraged, as it had been

distinctly shown that a military training and a knowledge of military details were necessary in the army. The third method, and the only possible sound solution of the difficulty, was to have a thoroughly efficient and sufficient body of medical men and orderlies for small as well as great wars. It had been proposed to form a general service and a limited medical service, the officers and men of the former corresponding to the present Royal Army Medical Corps, who should receive good pay and allowances on account of the foreign service they would undertake. In Germany, Russia, Switzerland, Sweden, and other European States they had the most skilled and famous surgeons in the army. In peace time those surgeons were, in addition to their military duties, allowed to continue their private work in the neighbourhood of their military charge and thus those States could afford to employ a very large number of medical men in time of peace and so had a large body always ready for war. Great Britain could not very well act altogether like these States on account of the colonies and it was therefore necessary that there should be a well-paid and attractive foreign medical service, but if that home medical service were formed giving less emoluments and smaller pensions but allowing the officers to continue their private work as in the Indian Medical Service and in the countries named, there would be no difficulty, just as there was none in those same countries, in forming a very large body of military medical men, including the very best men in the profession, who in time of emergency also would be liable for service anywhere. These officers would be attached to home service battalions—in fact, their own territorial regiments if possible—and the auxiliary medical service would be absorbed under that new scheme. Their pay and pension would not be out of proportion to their services, as patriotism—and glory if they liked—should make them most willing to serve. To those who could not be given military duty, as their residence might make it impossible, Major O'Connor would give a retaining grant of £25 a year in addition to the pay of their rank during training or while serving.

Surgeon-Lieutenant-Colonel ROBINSON suggested that if the Army Medical Reserve were to be employed more freely in time of peace they might be used to train a reserve of men in nursing duties.

FRIDAY, JULY 28TH.

Surgeon-Lieutenant-Colonel ROBINSON read a paper on

The Feeding of the Soldier on Active Service.

He said that as to the food itself the quantity laid down was ample and during the recent war it was generally of good quality. Bread, however, should be issued whenever possible. It was such an important article of diet that men missed it greatly and would do anything to obtain it. Other nations appeared to attach great importance to it. A portable bakery should accompany troops and be made use of at every opportunity. A great deal had been written on the subject of drinking water, the difficulty being that men when thirsty would drink the water most accessible, no matter what its quality. The first thing to be done was to let the soldier realise that the constant drinking of tepid and dirty water was not only injurious but failed to relieve thirst. It was, however, to the cooking they must look to get the most good out of the rations which were sufficient and to insure that variety which appeared to be essential to the well-being of man. On active service there was a lamentable monotony in the meals provided. The almost universal practice consisted of cutting the meat into chunks, filling the kettle with water, and stewing the whole for two hours. But no matter how excellent those stews might be, a roast or baked alternative seemed almost a necessity and that appeared at present unattainable. A large portable oven on wheels would be a great boon, not only for obtaining variety in cooking but also for baking bread. One great additional advantage would be that cooking could be started before the destination was reached and so much time would be saved. A man was not a fully trained soldier if he could not himself turn out something tasty in the way of a supper. That was a matter to which more importance might be attached during training, especially at manœuvres. The soldier was too much accustomed to come back to a "certain place" and there to find his dinner waiting him. In the earlier part of the war men on outpost or other duty away from their companies were half starved by not knowing how to cook their ration of meat and flour. On that subject a quartermaster-sergeant of Royal Artillery, who was three years in South Africa, writes as follows:—"I found as cooks we were absolutely of no use. Often in getting over the country we could, and did, pick up growing vegetables, which, when cooked in with the meat ration, would have made excellent soup and stew. But we seemed to depend too much on the one man who was the regimental cook, whose qualification for that post was often that he had bad feet for marching or was not too handy round a gun and so was appointed cook! The meal (dinner) always consisted of the 'stewed type,' chunks of meat thrown in the oval 12-quart camp kettle, immersed in water, and left to cook for two hours or so. When served up the very appearance of it proved sufficient and even hungry men would not eat it. I have seen whole kettles full which have never been touched, the men preferring their biscuit and jam. A man who could concoct a savoury meal out of the ration was rare indeed, and all were anxious to secure him as messmate. The Bushmen and New Zealanders could prepare a meal—i.e., coffee or tea, with steak, chop, liver, &c.—and be sitting down enjoying it whilst the British soldier was looking for wood or an axe to chop it with." In regard to field hospitals in all cases fresh meat should be obtainable for those sick who required it, on requisition by the medical officer. Special biscuit should also be obtainable for men suffering from fever or bowel complaint as they were quite unable to make use of ration biscuit. Those made from arrowroot or fine flour could often be used, or better still some kind of rusk which would make into "bread-and-milk." Rice, so easily prepared and digested, ought also to be forthcoming. "Ideal" (an unsweetened form of tinned milk) should be provided for those who could not take the sweeter forms of condensed milk. Unfortunately, it was rather more bulky owing to its being less condensed. For convalescents tinned chicken and rabbit were the most appreciated and most suitable diet. Tinned butter was a luxury but the sick expected to get something a little extra when in hospital. Small ovens were furnished to field hospitals. A great difficulty, however, during the late war was in getting cooks. A larger number of orderlies and other soldiers should be specially trained as cooks. That matter seemed to have been taken in hand by the authorities since the war as a special section of the corps was now made up of qualified cooks. The committee appointed to report on these matters said that it was very desirable that all soldiers should be systematically taught how to cook their rations in the field, especially men of the Army Medical Service and the auxiliary medical services. The committee also attached great importance to the careful instruction of company cooks in camp cooking and considered that a good deal of irritation of the bowel was caused by half cooked or badly cooked rations on service. The connexion between that "irritation of the bowel" and camp diarrhœa, colitis, dysentery, enteric fever, and cholera was a very close one; and if by careful training, cooking, and dieting the preliminary cause of that irritation could be done away with the saving to the army and State would be considerable and amply repay the trouble taken.

Fleet Surgeon A. J. J. JOHNSTON, R.N., suggested that every man should take his turn as cook, so that on active service everyone would be able to cook.

Lieutenant-Colonel E. M. WILSON, R.A.M.C. (retired), explained the arrangements that were made for the teaching of cooking in the Royal Army Medical Corps and hoped that a larger number might be instructed in that most useful service.

Surgeon-Lieutenant-Colonel ROBINSON said that universal instruction in extemporised cooking could only be dealt with by serving out the rations to groups of men during manœuvres.

Surgeon-Lieutenant-Colonel P. B. GILES (Volunteers) read a paper on

The Care of Soldiers' Feet.

He said that in all cases of deficiently developed arch there was one cardinal object to attain—viz., to get the arch properly established and maintained. It mattered comparatively little in actual practical treatment whether the metatarso-phalangeal joints and the phalanges were prehensile or were lifting factors or a composition of both, so long as the fact was accepted that the foot should be flexible and not rigid in walking and marching. That the foot should be flexible and not rigid in marching was proved by the success which had attended cases of insufficiency of the arch when treated by employment of extra work

upon the metatarso-phalangeal joints as compared with that of "blocking up" the foot and so creating a system of walking with a rigid foot. Excessive development of the arch with a small heel, associated as it always was with more or less eversion of the foot, was a matter of great difficulty to correct. He had rarely failed to make good walkers out of those with deficiencies of the arch under proper training, but he had never been really successful with an over-developed arch accompanied with a small heel. It was not so generally recognised that the acridness of the secretion of the feet was a predominating factor in sore feet and that those who were afflicted with that secretion not only blistered easily but developed soft corns of a most intractable form. In regard to the artificial covering of the feet socks must be thick, of wool, and have natural-shaped toes. Cotton socks were fatal; they were thin, non-elastic, very absorbent, and with moist feet soon became a veritable sponge. Wool, on the other hand, could be made thick, was elastic, and when covered with perspiration would, if exposed to the air and sun, quickly dry, could be beaten and well rubbed if washing was impossible, and come out daily fairly fresh. Rags, bandages, and felt were frequently vaunted over socks, but his experience and observation with troops were against all those wrappings when used with laced boots. In such cases where blucher or riding boots were used and the foot was more or less rigid wrapping as compared with socks was on a par or even better because the back of the heel could be better protected. Boots should be large enough to give freedom antero-posteriorly as well as laterally, without being loose. The soles should be thick, the waist pliable, and the heels large and low, but the *sine qud non* was that the inside of the boot must be cut straight and coincide with Meyer's line and not turn up at the toe. The upper should be soft and there should be no harsh seam at the heels. After each march there should be an inspection of the feet for the first few days by the medical officer, after which by the company officers, only cases of doubt or those requiring treatment being sent to the medical officer. The routine washing followed by pickling in a solution of salt and boric acid rendered the most moist feet safe. That treatment was far in front of ointments or grease of any kind, as even when well fortified with antiseptics grease had a tendency at the heat of the body to ferment and to create the very mischief which the remedies were used to prevent. Soaped socks were seldom of service because the soap being generally of a common kind was either too fatty or contained a large proportion of alkali.

Captain PEAKE discussed the importance of properly fitting boots and declared that the shape of the boot was of the utmost importance to the mobility of an army.

Lieutenant-Colonel WILSON emphasised the importance of the subject and urged that men should not only be able to use their rifles but also to walk upon their feet.

Lieutenant-Colonel J. J. DE ZOUCHE MARSHALL, R.A.M.C. (Vol.), communicated a paper entitled

Suggestions for First-aid Treatment of Fractured Thigh in Military or Civil Practice.

He stated that the object of the paper was the simplification of first-aid treatment of the injured in connexion with fractured thigh whether in warfare or in civil life. The "rifle splint," providing as it did perfect counter-extension, had been looked upon by all acquainted with it as an ideal remedy in such cases, but he had learned from army medical officers with large experience in the South African war that it was very seldom used in that campaign owing to the terror produced in the minds of the unfortunate patients at the mere idea of its complicated application in the hands of imperfectly trained men, of whom, unfortunately, hundreds had to be employed there as stretcher bearers. From what he knew of the splendid training of the non-commissioned officers and men of the Royal Army Medical Corps he had no doubt that a squad of them could with ease and expedition apply a rifle splint with the minimum of suffering to a patient, but how often did it happen that a Royal Army Medical Corps squad could be kept together in South Africa? Instead it was doubtless necessary to place one Royal Army Medical Corps "trained" man in charge of three others of "all sorts" to make up squads and Tommy Atkins was just the man to diagnose at a glance whether such bearers were up to their work or not. Hence the yells and screams that dismissed the "rifle splint" and compelled the transport of those cases from the field on a stretcher with little more "dressing" than a bandage or two around the stretcher to steady the body on it. If that was the case with one well-trained and three partially trained men it was awful to contemplate the effects of the efforts of one partially trained civil ambulance man and three totally untrained men to apply a "broom handle" and other splints, with about seven bandages, to a case of fractured thigh occurring in one of our streets or factories and their unrehearsed struggles to get their patient on to a stretcher. For that was the most that civil ambulance teachers could hope for—viz., that one of their certificated pupils might happen to be on the scene of such an accident and that the said pupil might be able to direct the movements of a few untaught men from the crowd. It stood to reason that in either case, military or civil, the treatment taught and practised should be of the simplest nature consistent with efficiency. The treatment in vogue of securing a long splint with several bandages involved so many liftings of the body and limb that the process, undertaken by amateurs, must be attended by much suffering, for, though a gentle method of introducing bandages beneath the body and limb was sometimes taught, it was seldom put into practice even at civil ambulance examinations and would doubtless be forgotten altogether in the flurry of an actual accident. In considering an effective treatment not involving all that tying of bandages around the body and limb Lieutenant-Colonel Marshall evolved the idea of taking the stretcher as it was and relying for the fixation of the pelvis of the patient on a roller perineal bandage attached to the upper handles and for counter-extension on bandages fixed to the patient's foot and lower handles. For that stretcher first-aid treatment of fractured thigh he claimed that it could be carried out expeditiously and painlessly; that it placed the limb in the best position for dealing with hæmorrhage in a compound fracture and for subsequent permanent treatment in hospital; that it reduced to a minimum the suffering and danger during transport caused by sharp spiculæ of bone injuring nerves and blood-vessels; and that by fixing the patient on the stretcher it enabled him to be carried up or down steep hills and did away with the risk of his being thrown off in case either of the bearers should stumble while carrying him "shoulder high"—a proceeding in much favour with eminent military surgeons, notwithstanding the warnings against it in text-books.

PSYCHOLOGICAL MEDICINE.

FRIDAY, JULY 28TH.

Dr. ROBERT JONES (Claybury Asylum) opened a discussion on

Prognosis in Mental Diseases.

Prognosis meant generally to foretell, foreshow, forebode, to predict, presage, or to prophesy what was likely to take place and the ability implied a power of foretelling the future by the correct interpretation of present signs. Prognosis when applied according to the principles of medicine was the judgment formed by the physician regarding the future progress and termination of any disease. The fate of the patient caused particular anxiety to the relatives in cases of mental disease and questions were asked such as "Is there danger to life?" "Will the illness terminate in recovery or death?" "Is the illness likely to be a long-continued one?" and "Will there be any permanent mental weakness left behind after recovery from the attack?" It was of the utmost importance that a correct answer should be given, for the family might have to bear the burden of the care and treatment of the insane person for a considerable time, for of all ailments insanity was one which was costly to nurse and required time for its treatment and recovery. The formation of a correct prognosis required experience, skill, and insight into the nature of the disease, as well as knowledge of its cause and origin. The peculiar constitution of the patient, the general powers of recuperation, the soundness or tainted neurotic quality of his parentage, the actual form or kind of insanity he had developed, and the circumstances in which that development had been reached—all these were points for careful thought and judgment. The age and sex of the patient, the epoch of life—puberty, adolescence, pregnancy and the puerperium, the menopause and old age—all had to be considered in prognosis. External influences also modified the disease and in this category were included access to pure air and sunshine, an abundant supply of good nourishment and facilities for nursing, there being for the individual as well

as for organised society a law of relation of mental health to environment. Insanity in whatever form it affected the individual shortened life; the average rate of mortality of the insane population of Great Britain was six to seven times that of the sane general population. In European and American asylums the official statistics bore out the same conclusion as to the high death-rate of the insane. Thus the average annual death-rate in these asylums was 8 to 12 per cent. of the average number resident—a proportion more than six times that prevailing in the general population. Dr. Jones estimated that of 100 persons attacked with insanity 30 recovered and remained well, while the rest died or passed into chronic dementia or partially recovered to recur again and finally lapsed into dementia. Three out of ten patients who developed insanity therefore recovered and remained sane for the rest of their lives; seven died insane sooner or later. Complete recovery with full immunity against recurrence was rather rare and exceptional. They were thus justified in looking upon insanity as a diseased state which shortened life and upon the insane as a class which was marked by considerable physical inferiority and lowered vital resistance to disease. The special proclivity of the insane to pulmonary tuberculosis also rendered prognosis grave in both the congenital and "acquired" insanities. A higher percentage of girls than boys recovered from the insanities and minor psychical disturbances of adolescence, the period of 18 to 25 years of age. Most cases of insanity did not come under treatment during the early manifestations of mental disorder. There were other factors, such as the long-continued action of determining causes, as alcoholism, plumbism, dissolute living, years of misery and destitution, which also entered into the question of prognosis. In young children the occurrence of insanity was of very bad prognosis and the presence of syphilis or epilepsy rendered the prognosis worse. General paralysis and acute delirious mania were of fatal prognosis, the mortality reaching to nearly 100 per cent. Among the insanities proceeding from congenital or embryonic anomalies of brain development were paranoia, folie raisonnante, the insanity of cranks and eccentrics, and epileptic insanity of the young which were found to be incurable. Neologisms—the habit of inventing words and phrases of mystic meaning—and verbigeration were of bad prognosis. A good environment, concluded Dr. Jones, was potent for healthy development in cases where hereditary taint was not overwhelmingly bad and he thought that every effort should be made by parents and teachers to bring up the infant and young child in a morally and physically healthy environment.

In the discussion which followed

Dr. A. R. URQUHART (Perth), the President of the section, expressed his general concurrence with the views of Dr. Jones as enunciated in his paper which was full of scientific and practical interest.

Dr. T. B. HYSLOP (London) said that in senile insanity the prognosis depended more on the condition of the patient's arteries than upon the mere age. His experience with regard to adolescents was that the "exhaustion psychoses" were coming more into prominence of late years. He considered that the study of the charts of insomnia was a valuable aid to prognosis and that in some cases a fairly definite prognosis was possible to be formed as to curability.

Dr. W. LLOYD ANDRIEZEN (London) argued that death-rates in asylums should be calculated on the yearly census—i.e., the average number of patients resident per annum—and not on so inconstant and fluctuating a quantity as the yearly admissions. He agreed with the estimate that 70 per cent. of recoveries might follow early admission and treatment but thought that many recurred later. Paranoia and the degenerative psychoses were incurable, because the underlying anomalies of cerebral development began in pre-embryonic life and continued after birth. He concluded by stating that the prognosis in insanity was worse than Dr. Jones's estimate of it, as his own investigations brought him to the conclusion that out of 11 persons who developed insanity nine ultimately died insane and that of the remaining two but one recovered perfectly.

Dr. D. BOWER (Bedford) said he concurred in the view that insanity shortened life but did not believe that tuberculosis was more frequent in asylums than amongst the general public. Where hereditary tendency to insanity existed patients became insane from slight causes but they readily recovered. Such recoveries were, however, followed by frequent recurrence under new stresses.

Dr. L. R. OSWALD (Glasgow) said that to forecast the date or time of recovery was very difficult. He believed that acute mania was more often recovered from than was melancholia proper and that in senile cases a healthy condition of the arteries was of favourable significance.

Dr. T. JOHNSTONE (Leeds) regarded tubercle as the result of "a weakening of the peripheral nerves," and gave instances illustrating this view from influenza and its sequential broncho-pneumonia and cardiac failure. Cases of general paralysis followed mild syphilis. Prognosis in senile insanity might be good *qud* insanity but was bad as regards life.

Dr. FLETCHER BEACH (London) agreed that the earlier the age of onset of insanity the worse the prognosis, especially when insanity appeared in early childhood. Congenital imbeciles were, he thought, capable of manual training and of increase in intelligence, as was proved by the experience of the special centres for their education under the London County Council. Epilepsy shortened life only when the epileptic was insane but he did not think it was true with regard to sane epileptics such as formed the "colony" at Chalfont St. Peter. The conditions there were favourable to lengthen rather than to shorten life.

Dr. JONES then briefly replied to the comments made, and questions raised, on his paper.

Dr. L. D. H. BAUGH (Glasgow Asylum) read a paper on

Confusional Insanity.

He believed that in many cases they were due to the toxæmias of sepsis, acute specific fevers, alcohol, and the puerperium. The material used was collected from 47 cases which had been under his care and observation during the past three years at the Glasgow Asylum. The cases showed a fairly definite group of symptoms, psychical and physical. The mental symptoms were a purposeless resistiveness, confusion, absence of emotion, and a facial expression like "embarrassment." The physical symptoms were cutaneous disturbances of circulation, leucocytosis, the presence of indoxyl in the urine, and the special symptoms proper to the physical ailment. Dr. Baugh then proceeded to deal with these symptoms *seriatim*. Purposeless resistiveness, he said, was found in all the 47 cases; emotion was absent in 32 cases, and in the remaining 15 it was only occasionally present and that merely for short periods. These figures regarding the condition of emotion showed a great difference from those of ordinary mania and melancholia in which an emotional state was always a dominant factor. Embarrassment and the fixed facial expression were present in all the 47 cases. The presence of indoxyl in the urine was tested for only in the last 19 cases and found to be present in excess in all. Leucocytosis to the extent of over 9000 per cubic millimetre of blood occurred in 24 out of 33 cases which were examined. Over one-sixth of the total cases were considered to be the result of a toxin acting directly on an unstable nervous system, and in these a preliminary mental confusion led to a febrile or post-febrile delirium; symptoms of auto-intoxication, judged by indoxyl, were not present until after delirium. The probable proportion of cases due to toxæmia was reckoned to be more than one-sixth of the total number. In all the cases there was a definite causal relationship between the physical and the mental phenomena, the constant symptoms being a persistent vaso-motor condition, leucocytosis and indoxyl in the urine, mental confusion and absence of emotion, a fixed facial expression, and purposeless resistiveness, which completed the picture of what he would call a definite clinico-psychological type of insanity.

The PRESIDENT congratulated Dr. Baugh on the excellence of the paper and the practical insight that it displayed in dealing with an obscure form of insanity. The proceedings then terminated.

TROPICAL MEDICINE.

FRIDAY, JULY 28TH.

Mr. JAMES CANTLIE (London) opened a discussion on

Sprue.

He stated that up to the present no micro-organisms had been proved to be causative of sprue, although organisms had been described in connexion with the investigations of the disease. Apart from the question of micro-organisms sprue was a disease of persons who had resided for a considerable time in certain tropical countries, more especially the Malay Peninsula and Archipelago, Indo-China, Southern China, Southern India, and Ceylon, but typical cases of the disease occurred in mid-China, Japan,

and possibly other countries to the north of the equator. Atony or physiological atrophy of the liver was an early, perhaps the earliest, condition in all cases of sprue and the stomachic and oral troubles usually preceded the intestinal flux characteristic of the disease. Persons who had dwelt for some years in an area where sprue prevailed were liable to a form of stomatitis accompanied by tender tongue and ulcerative patches on the inside of the lips and cheek and on the gums, tongue, and palate. Repeated attacks of this condition of the mouth were prevalent, as many as three or four or more occurring during 12 months; attacks lasted about three weeks and these in time might or might not be followed by the intestinal flux typical of sprue. When established there was no possibility of confusing sprue with any other of the intestinal lesions; the tenderness of the mouth, the bulky frothy pale morning stools, the loss of weight and the anæmic condition of the patient formed collectively a group of signs and symptoms indicative of the nature of the ailment. The treatment consisted in bringing about the physiological activity of the liver. This could not be done by milk and Mr. Cantlie stated that at the second meeting of the Section of Tropical Medicine in 1898 he had declared against the treatment of sprue by milk and subsequent experience had still further confirmed him in his view. A milk diet (milk and nothing else) would certainly in time check the diarrhœa and so would certain medicines, but this did not cure the disease. The fæces of a patient suffering from sprue and taking milk were not in any sense fæcal, the motions neither smelt nor looked like fæces and consisted of the almost pure curd of the milk passing quite undigested. The patient lived on the whey extracted from the milk and rejected the curd in a cheesy mass—the so-called solid stool of the patient suffering from sprue when on milk. By a milk diet the liver did not increase in size and no true bile appeared in the stools. On giving meat—a wholly meat diet—the stools immediately showed the presence of bile, the liver increased in size rapidly, and the aversion to food disappeared. When the patient was very weak and a fatal issue threatened fresh meat juice, raw or lightly cooked, might have to be given every five or ten minutes for a day or two, but afterwards the interval of feeding grew gradually longer until two or three hours might intervene. After a day or two beef jelly, beef tea, calves' foot jelly, scraped beef, pounded beef, and minced beef might be added as the patient's condition improved. For a patient taking meat five ounces of pounded beef were given morning, noon, and evening, with jelly between each meal, and freshly made weak tea, rice tea (rice put into the oven, roasted brown, and infused in boiling water), and rice water (water in which rice had been boiled) for drink. The good done by meat was partly no doubt due to its freshness, as sprue was seemingly allied in its nature to scurvy and the fresh juices of all meat or fruits were beneficial. In this manner could be explained the beneficial action of strawberries and other fruits. Medicines beyond an occasional dose of castor oil were uncalled for, although Dr. Begg found great benefit from santonin. He (Mr. Cantlie) had also found santonin useful. Cases of sprue arose in England many years (even seven or eight) after the patient had returned from the tropics.

Lieutenant-Colonel ANDREW DUNCAN, I.M.S. (London), read a paper on

Hill Diarrhœa.

The disease appeared most frequently amongst persons in India leaving the hot plains for change in the hills. Colonel A. Crombie held that hill diarrhœa was due to the presence in the digestive tract of some organism which multiplied there, devoured the colouring matter of the bile and perhaps other constituents, and so allowed of rapid fermentative changes in the intestine. Lieutenant-Colonel Dyson, I.M.S., considered that hill diarrhœa occurred in those hill resorts where the geological formation contained schist; in hill stations resting on sandstone the disease did not occur. The mica from the schist caused irritation of the alimentary canal, fermentative changes supervened, and a micro-organism developed, causing diarrhœa. In hill diarrhœa there were no oral symptoms nor was there any diminution of liver dulness as in sprue. The treatment advised by Colonel Crombie was in mild cases from 12 to 15 grains of pepsin. Ingluvin or lactopeptin was given two hours after food which must consist of milk. In severe cases five ounces of peptonised milk were given every two hours day and night and drachm doses of liquor hydrargyri perchloridi 15 minutes after a meal. This treatment, combined with rest in bed, would prove successful in a few days.

Dr. L. W. SAMBON (London) considered that sprue was undoubtedly due to a micro-organism and that the long incubation period which at times precedes the manifestation of sprue was by no means unique.

Dr. DAVID J. GALLOWAY (Singapore) also considered that sprue was due to a micro organism. He had no doubt of the infectious nature of sprue and cited numerous instances of the wife infecting the husband and *vice versâ* and similarly other members of the family. He objected to the term "sore tongue," as the tongue might be seriously affected without pain. The whiteness of the stools was likely due to the type of fermentation which took place in the intestine. Anæmia was a very pronounced symptom of sprue. He considered that drugs played a useful part in the treatment of sprue and he believed that intestinal asepsis was highly beneficial. Milk treatment had in his hands given most satisfactory results.

Dr. ALBERT J. CHALMERS (Ceylon) thought that sprue was rarer in Ceylon than it used to be. The treatment he had found most useful was "liver soup" (an old treatment in Ceylon) combined with intestinal disinfectants.

Dr. J. CAMPBELL GRAHAM (Sumatra) stated that sprue was not common in Deli, Sumatra. Europeans were proportionately more often attacked than were the Javanese, but as most stomachic derangements were termed sprue in Sumatra and Java there was much confusion between real sprue and other troubles. He gave a summary of Dr. A. van der Scheer's paper on Indian Sprue which he had translated and condensed. This authority considered that the signs and symptoms of sprue were due to abnormal digestive processes going on in the bowel which were indicative of an enterogenous auto-infection; he also, as stated by Mr. Cantlie, considered suppressed appendicitis a potent agency in the causation of sprue and proposed removal of the appendix as a means of cutting short the ailment.

Dr. F. O. STEDMAN (Hong-Kong) believed in the benefits of the milk treatment in many cases of sprue with an intestinal antiseptic such as beta-naphthol. A form of diarrhœa which occurred in Hong-Kong after the first heavy rain was probably due to micaceous particles in the water which was slightly opalescent at that period of the year.

Dr. C. F. HARFORD (London) alluded to the seriousness of diarrhœa from whatever cause in the tropics and advised that more serious attention should be given to the subject of early intestinal flux. Intestinal derangements were the cause of a large number of persons being invalided in hot countries and our present knowledge of the pathology, prophylaxis, and treatment of these ailments was largely of an empirical nature. He would advise the schools of tropical medicine to give more attention to the diseases of the alimentary canal than had been hitherto done.

Mr. J. H. EBELL (Colombo, Ceylon) referred to the liver soup treatment of intestinal flux in Ceylon and to the use of toddy, the fermented juice of cocoanut palm, as an effective means of treating sprue.

Dr. JOHN HUTSON (Barbados) stated that what was regarded as thrush in Barbados was really sprue. Pellagra often complicated the disease in Barbados. A strict banana diet, he had found, cured cases of sprue in from three to four weeks and small doses ($\frac{1}{120}$th of a grain) of corrosive sublimate frequently repeated seemed to be beneficial.

Major G. H. FINK, I.M.S., said that in his experience in India the sterilised milk treatment was successful. He was inclined to agree with the idea that mica in the drinking water played a part in the causation of hill diarrhœa. He advocated more extensive investigation of native drugs and remedies.

Dr. W. L. STRAIN (Brazil) stated that he could not remember during a 20 years' experience ever having seen a case of sprue in Brazil, although intestinal troubles were rife. When diarrhœa took the fermentative form with pale, foul-smelling stools the use of some form of ox bile had proved highly beneficial and a pill containing ox bile made by Erba of Milan was largely used in S. Paulo for most forms of diarrhœa.

Lieutenant Colonel DUNCAN stated that he believed that milk could cure sprue but the treatment recommended by Mr. Cantlie was more speedy and developed the liver in a way which milk never could.

Major FINK contributed a paper entitled

The Mosquito Malarial Theory and Malarial Prophylaxis from the Latent Phase.

This paper, already published in pamphlet form, dealt with the constant source of malarial fever in tropical countries as

opposed to the accidental. Major Fink did not consider that the constant source of malarial fever lay in the mosquito, while even as an accidental cause it occurred in perhaps from 5 to 10 per cent. of the cases by the mere bite and nothing else.

Dr. H. HEARSEY, principal medical officer, British Central Africa, contributed a paper on

Malarial Fever in British Central Africa.

He stated that in British Central Africa the forms of malarial nfection were the tertian and the æstivo-autumnal. The tertian type was the commoner and was of either the single or double tertian variety. The tertian forms were amenable to quinine, whereas the "multiple" infection forms and æstivo-autumnal fever were generally resistant to quinine. Dr. Hearsey was inclined to regard hæmoglobinuric fever as a pernicious form of the æstivo-autumnal variety and was inclined to attribute the disease to (1) anæmia due to long-standing malaria, rendering the hæmoglobin more unstable and permitting of its liberation on slight provocation; (2) a sluggish condition of the liver; and (3) the presence of nephritis. In the treatment of hæmoglobinuric fever quinine must not be given. A mixture of bicarbonate of sodium (ten grains) and perchloride of mercury (30 minims) every two or three hours served to prevent suppression of urine; an injection of half a grain of morphine helped to control vomiting; nourishment was maintained by the ordinary invalid food and drink, and brandy was used to the exclusion of other stimulants.

Dr. ST. GEORGE GRAY (Sierra Leone) sent a paper entitled

Notes on the Method of taking Quinine in the Prophylaxis of Malaria.

He was of opinion that a person who took five grains of quinine daily was pretty sure to escape malarial fever; those taking three grains daily, however, were more frequently attacked. These quantities in time, however, were liable to cause deleterious consequences. Dr. Gray suggested that as the life cycle of the parasite was about 48 hours in Sierra Leone and that fever developed eight or ten days after infection a full dose (10 or 15 grains) of quinine should be taken on two successive days with an interval of eight or nine days before the next two doses were taken; by this plan the parasites would always be destroyed before they could cause fever, and it presented several advantages over the daily or alternate day's dose of quinine.

Mr. CANTLIE contributed a paper on

Recent Cases of Abscess of the Liver.

He reported two cases of abscess, one in a patient from Brazil and the other in a patient from India; in both cases the pus was on the upper part of the liver; both were cured in about three weeks by the large trocar and cannula and syphon drainage plan of treatment. In two other cases, both from India, the pus had infiltrated and destroyed the whole of the lower lobe of the right lung; both patients died in spite of free drainage by removal of ribs and packing the pleural cavity with gauze. Mr. Cantlie also gave notes of a case of abscess of the liver in which gangrene of the right half of the liver resulted in all probability from an infective embolus in the right branch of the portal vein. A sixth case referred to was that of an abscess in the liver in a man who had never been out of England. The pus in this case showed the abscess to be due to streptococcal infection; the patient, after the abscess was tapped and drained, had a prolonged period of high evening temperatures, but ultimate recovery now seemed probable.

Dr. ALDO CASTELLANI (Colombo, Ceylon) sent a paper on

Diarrhœa from Flagellates.

In cases of diarrhœa which came under Dr. Castellani's notice in Ceylon he found flagellates in the evacuations. Methylene blue was very poisonous to blood flagellates (trypanosomes) and a solution of this drug proved to be equally so to intestinal flagellates in laboratory experiments when injected per rectum. The flagellates present in the fæces could be divided into three groups:—(1) large, pear-shaped bodies, from 18 to 25μ in diameter, possessing an undulating membrane, two or three flagella at one pole and a short flagellum at the opposite pole, with indistinct nucleus and several apparently non-pulsating vacuoles; (2) small roundish bodies from 6 to 12μ in diameter, no undulating membrane, with one flagellum only but no vacuoles (these were probably cercomonata); and (3) roundish non-motile bodies from 15 to 20μ in diameter, staining blue by Romanowsky's method, with sometimes a few vacuoles. Associated with these flagella in one case were found the protozoal parasite, lamblia intestinalis, and a protozoon which provisionally Dr. Castellani termed entamœba undulans. Infection of laboratory animals gave negative results. Several observers had described cases of diarrhœa due probably to flagellates, but hitherto the tendency had been to believe that the parasites were harmless; from the fact, however, that diarrhœa occurred when the flagella were numerous and disappeared when the flagella were in minute numbers a certain probability as to cause and effect would seem to be indicated.

Mr. J. TERTIUS CLARKE (Perak) read a paper on

The Present Theories of the Cause of Beri-beri.

He dealt with the subject under the following heads: (1) The arsenical theory of Ross; (2) the "rice" theory; (3) the "place" theory; and (4) the acute or subacute infectious disease of Dr. Hamilton Wright. Mr. Clarke tried to infect monkeys by causing bugs from the beds of patients suffering from beri-beri to bite monkeys but the results were negative. Moreover, ward attendants did not contract beri-beri as a rule. He related one instance where a Chinaman acted as ward attendant in beri-beri wards for nine years and never contracted the disease, yet when he went to do tin-mining he went back to hospital in a few months with beri-beri. Still it was a fact that the disease might infect a "place," might disappear from that "place," and disinfection might apparently prevent further cases. No Tamils acquired the disease though the rice supplied to them was actually the same and cooked in the same vessel with the rice supplied to Chinese. It might be worthy of note, however, that the Tamils always took a quantity of pungent curries and essential oils with their meals whereas the Chinese seldom did.

Dr. HAMILTON WRIGHT (formerly of the Federated Malay States) believed that beri-beri was due to a specific organism which gained entrance to the body *viâ* the mouth, that it developed and produced a toxin chiefly in the pyloric end of the stomach and duodenum, and that the toxin being absorbed acted atrophically on the peripheral terminations of the afferent and efferent neurons. Further, that the specific organism escaped in the fæces and lodged in confined places through accident or the personal habits of those affected by the disorder, and that in the presence of congenial meteorological, climatic, and artificial conditions of close association from overcrowding, the organism became virulent and gaining entrance to the healthy body in food, &c., contaminated by it gave rise to an attack of the disease. The fact that the germ remained so closely local could, he thought, be explained by its being at once destroyed by the action of direct sunlight or that the presence of carbon dioxide or some other gas was necessary for its virile development. It seemed from his observations that the active stage of the organism in the body was between three and four weeks. He based this estimation on the facts that the preliminary feeling of oppression in the epigastrium ceased at the end of about three weeks and that it was rare to find the lesion of the gastric and intestinal mucosa in cases of only six weeks' standing.

Dr. R. T. HEWLETT (London) contributed a

Note on Two Cases of Beri-beri Paresis treated with Injections of Strychnine.

After a course of strychnine, iron, and arsenic combined with galvanism little or no progress in the amelioration of the paresis was noticeable but when one-fiftieth of a grain of strychnine was administered subcutaneously twice daily a rapid improvement was observed in a week's time.

Dr. STEDMAN gave details of an outbreak of beri-beri which occurred on board a sailing ship ten days out from New York in which the contagious nature of the disease seemed to be pronounced.

Dr. STRAIN had seen sporadic cases of beri-beri occurring in women after childbirth in Brazil.

The PRESIDENT of the section (Professor R. W. BOYCE), Major FINK, Dr. GALLOWAY, Lt.-Colonel DUNCAN, and Mr. CANTLIE also joined in the discussion.

MOTOR AMBULANCES. — The Metropolitan Asylums Board, at its meeting on August 5th, accepted the tender by Messrs. James and Browne, Limited, of 395, Oxford-street, London, W., to supply a chassis suitable for an ambulance carriage.

THE LANCET.

LONDON: SATURDAY, AUGUST 19, 1905.

Lord Roberts on Imperial Defence.

IT is not easy to exaggerate the gravity of the position about which Lord ROBERTS warned the London Chamber of Commerce at a special meeting held at the Mansion House on August 1st. The great general declared that this nation, in point of readiness and efficiency, is at the present time altogether unprepared for war in support of our Imperial interests against any great military power and that our position not only has not improved since the time of the South African campaign but has, indeed, become worse. The successful issue of that war was, he added, in no small degree attributable to the relative inferiority of our enemy in numbers, discipline, and organisation, so that the same results might not have occurred had we been fighting against one of the armies of a European power. Looking back on all that took place during that anxious period and considering that during the South African war this country was left absolutely denuded of all regular troops we realise in what a humiliating and even dangerous situation we were then placed. We have no desire to dwell on the dark days of our South African defeats or on the various commissions of inquiry with their saddening outcomes. So far as these investigations disclosed the medical and sanitary shortcomings of the campaign, with their real or alleged causes, they were fully discussed by us at the time, so that we may assume that our readers are acquainted with their significance. But Lord ROBERTS'S message to the country can only be estimated at its full value by those who can recall to their minds the history of the South African war. And surely no one who has his country at heart can have forgotten it.

Lord ROBERTS, holding the views that he does on the need for the improvement of our Imperial defence, considered it his proper course in the first instance to give expression to them in the House of Lords. This he did, it will be remembered, recently, but it was, as he said at the Mansion House, to the country generally that he desired to appeal. It was indeed time that someone in authority should strive to rouse the nation from the state of lethargy into which it has fallen and this has now been done in a bold and comprehensive spirit both in regard to the strictly combatant and the medical branches of the service. Lord ROBERTS, who has been a man of war from his youth up, fully realises that we cannot always rely upon a pure policy of diplomacy and conciliation for procuring us peace. "When a strong man armed keepeth his palace his goods are in peace"; in other words, peace can only be made sure by readiness for war. This security, Lord ROBERTS declares, can only be obtained for our country by introducing some form of universal training and service for home defence. By the provision of such a system, in the course of time Lord ROBERTS believes that such a state of readiness and efficiency would be reached as would put it outside the interests of any foreign power to risk war with us, while we could meanwhile avoid the rigid system of army conscription adopted by our more strictly militant rivals. All the points raised and discussed by Lord ROBERTS in the course of his long speech are based upon the need in this country of organised preparation for war, and we may say at once that it not only seems to us right that there should be some system of obligatory military training on the part of the youth and young manhood of this country but from a medical standpoint we hold that it would prove highly beneficial. The effect of a military training, even of the most modified sort, is to strengthen the character and manliness of a people; health and physical vigour improve, while discipline tends to develop the intelligence, to increase alertness of thought and action, and to inculcate a habit of prompt obedience—all of which are undeniably good, valuable, and useful qualities. We have recently had some illustrations of the military material ready to hand and available at our public schools. Instruction in drill and the use of a rifle no boy dislikes, while camp life is keenly relished by every lad of ordinary spirit and he is physically and morally the better for a spell of it. The hatred of so-called "militarism" in this country is too easily turned into an excuse for shirking patriotic duty. We are not advocating Napoleonic conscription or, indeed, conscription at all as it is understood in France or in Germany. Such conscription may be our lot, though the drawbacks to it are undoubted. But for the present so extreme a course is not in question. But the youth of our nation want to be instructed in military discipline and the rudiments of military life, and every effort on the part of our military and educational authorities to arrive at this result will have the hearty support of the medical profession.

We hope that what Lord ROBERTS has to say about the Army Medical Service will be carefully read and studied by all. It will be seen that the late Commander-in-chief describes the exceptionally difficult and adverse conditions with which the medical officers had to deal and that he vindicates them from all blame in connexion with the lamentable occurrences and deficiences which were brought to light in the course of the South African campaign. But have we been taught by the sad experiences which we gained there and by the object lesson which we have had elsewhere? Are we better prepared for sending large forces into the field satisfactorily equipped for the prevention of disease? Lord ROBERTS, it will be seen, says that we are not much better off at present as regards our medical requirements than we were in 1899. In that case, whatever may have been the proposals of the Advisory Board, we have still to see the effect of them. The present unsatisfactory and chaotic state of military affairs demands a statesman who can take a grip of the whole subject. The means and the material at the disposal of the British empire are the envy of other countries, so that it ought to be possible to organise a scheme of Imperial defence and medical aid in war in which this country and her colonies could take a coöperative share and responsibility.

School Legislation and the Demands of Hygiene.

IT is certain that none of those responsible for the introduction of compulsory education into this country foresaw all the developments which would ensue as necessary adjuncts of this system. If we force all children to attend school we are compelled to take all possible steps to secure that they shall be exposed to no avoidable risk in so doing. Hence arises the need not only for careful inspection of school buildings to see that they conform to the requirements of modern sanitary science but also for examination of the children themselves to insure that they are in a fit state of health to profit by the teaching provided for them and to guard against the introduction of infectious diseases into the schools. The risk of the spread of such maladies among children who are crowded together for purposes of instruction has often been pointed out and is, no doubt, real enough; yet it is not impossible that an undue burden of blame has been laid upon school life as the main factor in the spread of epidemics. Such, at least, is suggested by the results of an important research carried out by Dr. MYER COPLANS and embodied in a report made by him to the Gloucestershire education committee, a report to which we have previously made reference in these columns. In the area to which the report refers a very large proportion of the infectious diseases special to children occurred in those who were not yet of school age, being spread by home conditions, and Dr. COPLANS points out that only a comparatively short period of time is actually spent at school, amounting to about 51 full working days, or one-seventh of the whole year—"the remaining six-sevenths are passed beyond the ken or control of the education authority." Opportunities for infection at home and in the course of play are plentiful and must not be overlooked. Indeed, it is even doubtful policy in Dr. COPLANS'S opinion to close schools in the presence of an epidemic, since such a measure results in increased association among the children elsewhere without the supervision which is possible at school. We must, on the other hand, remember that the conditions within a closed building such as a school, with only moderate ventilation and with close personal contact, are more favourable for the transmission of contagion than those prevailing during outdoor play, so that it is difficult to acquit school life of the responsibility for much of the infective disease arising among children. If this is true of the zymotic maladies it is even more certainly the case with such grosser forms of parasitic disease as pediculosis. The complaint of parents who strive to keep their children clean and respectable is always that association with infected individuals at school is so constant that their best endeavours are futile. The prevalence of this evil is sufficiently proved by the figures supplied by Dr. COPLANS. Out of 6652 children examined no less than 998 were unmistakably suffering from the presence of vermin or their eggs; and as it is easy to overlook a few nits in a thick head of hair it is probable that these figures are rather short of the actual truth. The proper course to be adopted for eradicating this evil is not quite clear in the present state of the law. A child can, indeed, be excluded from school on account of the existence in him of infectious disease, but there is unfortunately no very satisfactory means of insisting upon the parents taking adequate steps towards cure at home. Continued failure to apply the remedies needed might, perhaps, constitute "neglect" of the child in the eyes of the law, and we have heard of instances in which the Royal Society for the Prevention of Cruelty to Children has brought pressure to bear upon refractory parents with satisfactory results, but some more reasonable machinery than this is required. If teachers notice cases of the disease at school something may be done to prevent its spread to others by making such children sit at separate desks, and for this purpose it is necessary to provide a certain number of desks fitted for the use of only one scholar at a time; indeed, the ideal state of affairs would be the provision of such a desk for each child in the school. It is needful further to bear in mind that the cloakroom may be a source of infection as well as the classroom and to exercise some supervision over the garments as well as over the persons of sufferers from this complaint.

A second point of much interest, which is brought out in Dr. COPLANS'S report, is the unsuitability of the clothing of many children in our schools. Among the children whom he examined this was most notable in the cases of the infants and of the girls, the former being swathed in a multitude of garments, sometimes as many as eight layers thick, which must necessarily be hot and cumbersome and interfere with the free movements of the limbs; while the girls were victimised, like their elders of the same sex, by the use of corsets. These were often the cast-off appliances of their mothers or elder sisters and were seldom well-fitted to the actual wearers. The girls suffered also from the clumsy construction of their outer dresses, for it was found in many cases that they were unable to stretch their arms above their heads without tearing their frocks. This may seem a small matter but in view of the importance now rightly attached to physical exercises and drill such ill-adapted clothing is seen to be a serious impediment to proper development. Nor is the remedy easy to devise, since it is not part of the duty of the educational authority to instruct the parents of the children in hygienic dressmaking. Probably the evil will work its own cure and the trouble involved in mending the rents produced by school drill will impress on the mothers of the girls the need of supplying them with more suitable costumes. The boys examined by Dr. COPLANS were apparently better off in respect to their attire but were cumbered with boots of excessive weight. Perhaps part of the clumsy gait noticeable among the youths of our lower classes may be traced to this peculiarity of foot-gear during their boyhood. Slight defects in the sight and hearing of children are now recognised as accounting for some cases of apparent mental backwardness and on these points many recent observers have written in our columns and elsewhere. Whether it is the case that ocular defects are more common than they used to be or whether it is only that their existence is recognised and treated now, whereas formerly they passed unnoticed, certain it is that errors of refraction are very commonly found when looked for among children at school and that correction of these errors has often a

most beneficial effect upon the health of the little patients. One of the most important duties of the medical inspector of a school consists in the detection of such cases. Still more conspicuously associated with signs of mental defect is the existence of deafness, and children who are found to be backward at school, while they are reported by their parents to be bright and intelligent at home, may often be found to suffer from this malady. At home familiarity with what is probably required from them takes the place of accurate hearing, while at school the inability of comprehension passes for inattention or stupidity. The frequency of aural discharges among the children of the poor is only too striking to anyone who has worked in the out-patient department of a children's hospital, and in many cases the condition is lightly regarded by the parents and submitted to no treatment. It can hardly be doubted that many cases of deafness might be prevented by timely remedial measures and now that general attention has been drawn by many authorities to the importance of aural lesions, and to the train of serious consequences that may ensue from them in later life, it is to be hoped that teachers as well as medical officers will be on the alert to recognise the dangers and to insist upon proper medical care for the child.

The benefits of medical supervision are well brought out by a supplementary report made by Dr. COPLANS, in which it appears that an examination of children in the same schools for a second period of six months revealed an improvement in the number of infectious ailments of over 50 per cent., while the non-infectious maladies also showed a decline, though not quite to the same extent. With many other points of interest contained in the report in question, such as the proper lighting of schools, the type of desk advised, and the provision of paper and pencils instead of the old-fashioned slate, we have not space to deal here. We can only hope that the importance of the investigation here carried out will be recognised and that other education authorities will follow the good example of Gloucestershire in appointing efficient inspectors to the schools under their care and in making their reports available for general information. In this way a valuable body of statistics will be compiled, and we may hope that the charge now levelled against our schools with only too much truth in a considerable number of instances—that they are responsible for more physical harm to some of the children than they confer mental benefit—will become a thing of the past. Our schools should instead become the means of diffusing a knowledge of the elementary laws of hygiene and should act as nurseries for a race of "good animals." For not the least materialistic among us can deny that it is "good animals" properly trained who become good citizens.

The Murri-Bonmartini Trial.

"INTELLECT, reinforced by culture," said an Italian statesman the other day, "is never lacking in Italy. What you miss is Character." This saying, of one who knew his compatriots well, has had striking illustration in the tragedy on which the curtain has just fallen in Turin—a tragedy in real life enacted in the "Mother City of Universities" by performers who, except the subordinates, were as intellectually and educationally developed as they were morally debased, and whose social activity, often as able as it was effective, stands in glaring contrast with the depravity of their *vie intime*. There is no need to recapitulate the sordid and sanguinary details. Judicial methods in Latin countries are so contrived that, long before the "juge d'instruction" has prepared his indictment, the minutest details of the *res judicanda* are public property—with the result that sides are taken in the interests of either party and that (as in the case now brought to a conclusion) it is impossible to impanel an unprejudiced jury in the locality where the incidents took place. Three years of judicial "preliminaries," three years of unwholesome curiosity fed by "information" more or less authentic, three years of suspense for the accused in prison and of abortive attempts to find and to fix the scene of trial, make the MURRI-BONMARTINI case only too typical of the administration of justice in the Italian kingdom. Justice, however, though moving *pede claudo*, as the poet puts it, has at length overtaken the guilty, and Bologna, the seat of a university and the centre of much that is most enlightened and progressive in Italy, has just seen two of her professional sons consigned to a living grave and two others of her citizens erased from the roll of society, as actors, primary or secondary, in a crime exceptionally horrible even in the Italian "Cronaca Nera." Signor TULLIO MURRI, the actual murderer of his brother-in-law, Count BONMARTINI, is an "avvocato" or barrister whose university record and professional ability marked him out for an honourable career; in fact, at an age unusually early he held a place in the communal council of Bologna. His sister, the Countess BONMARTINI, was the pride of her family for intellectual gifts and for accomplishments more than feminine and she, too, was active in Bolognese society as a promoter of good works. Her paramour, Dr. SECCHI, was a consultant of much acceptance in the city and the province; and Dr. NALDI, though a physician by profession, was possessed of talents, mainly literary, which, while weaning him away from his special calling, would still have made him noteworthy among his peers. That four such persons, moving in refined, academic, and social circles, should have, with more or less complicity, been the perpetrators of a crime supposed to be specially characteristic of the criminal class, constitutes the astounding element in the case and serves to explain the line of defence indicated and all too elaborately wrought out by the astutest of their counsel: "in fin dei conti, faremo i tutti e quattro pazzi" (the long and short of it is, we'll make them out, all four of them, to be mad). And so, in supplement to the orthodox examination and cross-examination of evidence in which Italian "avvocati" are past masters, for days—nay, weeks—the court re-echoed to the phraseology of LOMBROSO and his disciples, seeking to prove or to deny the presence in the accused of this or that "lesion," physical or mental, which makes a man a "criminaloid" as distinguished from a "criminal-né," or, in the absence of any such indication, at least a "dégénéré." Highly interesting, no doubt, was this conflict of experts but small was the impression that it made on the court—all the more that, as already said, the public, thanks to premature and non-official

"information," had taken sides, advanced Liberals sympathising with the Socialist MURRIS and ardent Clericals with the devotedly Catholic BONMARTINIS—while a considerable party loudly maintained in the press that all this super-subtle "attenuation" of crime was an unfair resource of the rich client as contrasted with the poor and that justice would be discredited in the eyes of the majority if testimony only procurable by the well-to-do should come in abatement of evidence which would have made short work of the proletariat. The presiding judge, while treating the experts with the consideration due to their profession, summed up on the lines traditional in such cases and with an eye to the "salus populi," propounded a series of "quesiti" to the jury, inviting them to weigh and to respond to them as they would in common life and to give their verdict accordingly. This the jury did with a fidelity that to the leading Italian organs of opinion is quite "reassuring" in the interests of justice, and in due course came the sentence which (*teste* the same opinion) is none too severe. Meanwhile, the heart of all Italy has gone forth in sympathy with the distinguished pathologist, consultant, and teacher whose fate it has been, at the sunset of an honourable and most useful career, to see his children excluded from society and his family name polluted by so dark and indelible a stain. Touching is it to read of the many old pupils, either in practice or holding academic chairs, who sought out their revered master and did their best to comfort him in his affliction. For ourselves, we can but add how sincerely we sympathise with AUGUSTO MURRI who has been an able contributor to our columns and whose kindness to the representatives of British medicine on Italian soil will ever be gratefully remembered.

Annotations.

"Ne quid nimis."

THE PRESIDENTIAL ADDRESS AT THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

ON August 16th the President of the British Association for the Advancement of Science, Professor G. H. Darwin, F.R.S., delivered the first part of his presidential address at Cape Town. The second part of the address is to be delivered at Johannesburg on August 30th. By the courtesy of the authorities of the Association we were supplied with advance proofs of both portions of the address. We have thought it well, however, to wait until the delivery of the second portion and to publish both portions together rather than to publish them separately. The subject of the address is "Evolution" and the term "evolution" has enormously widened its scope since the days of Professor Darwin's illustrious father who first applied the principle as a working hypothesis to the history of organic life, for nowadays the theory of evolution is applied not only to organic life but to the very constitution of the universe itself; and Professor Darwin, who in the first portion of his lecture made a general survey of evolution in its various branches and laid down certain general principles which in his opinion were common to them all, went on to show how general laws found an application in recent speculations as to the constitution of matter. He reminded his hearers that of late years the atom had been shown to be no longer an atom—i.e., that it was not indivisible. He announced at the end of his address that in the next portion he would consider various theories of evolution in the heavens. We therefore propose to defer any comment upon this most interesting address until we have published both parts of it.

THE HEALTH OF THE POPE.

AN Italian correspondent, under date August 12th, writes: "Just before the Supreme Pontiff was about to solemnise the second anniversary of his promotion to the Holy See he had one of those recurrent attacks of gout which, if not serious in themselves, are sufficient to cause a flutter in the ecclesiastico-political dovecots. There were considerable swelling and pain in the left knee, Dr. Lapponi was called in, and, having with local and general treatment induced the welcome relief, he left his august patient to the seclusion of his private apartments, with strict injunctions to spare himself the transaction of all but the least harassing business. Punctually carried out, the physician's prescriptions within 48 hours enabled His Holiness to give more than one audience and the following day to receive a deputation of some 40 persons. The incident derives its importance from the resuscitation of the proposal that the Pope should drop the rôle of 'prisoner with doors locked on the inside,' and for salutary change of scene and air transfer his quarters from the 'Palace and the garden' of the Vatican to his summer residence at Castel Gandolfo which for 35 years has never known the tread of pontifical foot. It is an open secret that no one would welcome this new departure more cordially than Pius X. who, not much beyond the meridian of life and accustomed to exercise in the fresh air, often misses

> 'The sea-pulse of the still lagoon'

and the breath of the Julian Alps, particularly when the thermometer registers 40° C. (104° F.) in the shade! But in his case, as in that of Leo XIII. and of Pius IX., the traditional policy of the Curia interposes its veto and the Ultramontane party, through which the 'obolo di San Pietro' chiefly finds its way into the pontifical exchequer, insists on his sustaining the rôle of 'despoiled monarch,' under the threat that any departure from that pose would be followed by a suspension of the doles of the faithful. This *argumentum ad crumenam* is all the more effective as it is well known that the economies introduced by Pius X. in the administration of the Vatican have failed to bring about that *pareggio*, or equilibrium between income and outlay, which he has so fervently at heart. So it is to be feared that attacks of recurrent gout notwithstanding—attacks, moreover, intensifying year by year—the Pope must bow to *force majeure* and afford one more illustration of the remark that, if 'uneasy lies the head that wears a crown,' not less so lies the head that wears the tiara."

COATINGS OF RADIUM FOR THERAPEUTIC USE.

AT a meeting of the New York section of the Society of Chemical Industry[1] Mr. Hugo Lieber described methods of preparing radium coatings for therapeutic use. The proportions of the radiations given off by radium and its disintegrated emanations are about 95 per cent. of α rays and about 5 per cent. of combined β and γ rays. Owing to their nearly negative penetrating power the α rays as well as the emanations are practically unavailable for therapeutic purposes when the radium is inclosed in glass tubes or similar containers. Even the superficial layers of a given preparation of radium are relatively impervious to the emanations and the α rays proceeding from the underlying

[1] Journal of the Society of Chemical Industry, 1905, vol. xxiv., p. 230.

layers. In order to obtain the full radio-active effect of a given quantity of radium it is essential, therefore, that the radium should be spread out in as thin a layer as possible in the form of a "radium coating" and that the α rays and emanations should not be intercepted by a glass vessel or other form of container. In preparing the coatings the radium is dissolved in a suitable volatile solvent and a suitable material is dipped in the solution. The material when dry remains covered with a thin film of radium. In coating celluloid rods, discs, or similar instruments with radium alcohol or amyl acetate forms a suitable solvent, as it temporarily softens the celluloid and enables the radium to be incorporated in the surface. The accidental removal of the radium is prevented by afterwards dipping the celluloid instruments in a solution of collodion which forms a thin tough protecting layer, permitting the α rays and emanations to penetrate freely. The radium solution (as well as the collodion solution) is dyed with an aniline colour in order to indicate which part of an instrument has been coated and to make evident the accidental removal of the radium coating. The advantage of using radium coatings prepared in this manner is readily shown by an electroscope. It is found that a delicate rod coated at its tip with radium bromide of 10,000 units activity and holding, therefore, very little radium compared very favourably in its effects with one gramme of the same salt contained in a glass tube or with ten milligrammes of radium bromide of 1,000,000 units activity in a very thin aluminium tube. The radium coatings make it possible to apply radium to practically any part of the body. Instruments so coated possess the great advantage that they can be sterilised without loss of radium, as the protective coating effectively resists even continued boiling.

OCCUPATION AND PHYSIOGNOMY.

THE medical man knows the value of studying the patient's face if he would diagnose thoroughly his patient's condition, and occupation, like disease, has an undoubted influence on the physiognomy. In ordinary conversation persons will be found sometimes amusing themselves by guessing at the probable occupation of a given person and an answer not far from the truth is very often forthcoming, based entirely upon the physiognomy of that person. There are, of course, certain conventionalities in regard to dress and toilet which materially help the diagnosis, but associated with the various occupations in life there is undoubtedly a type of face which more or less betrays the calling of its owner. Medical men, especially in hospital practice, find acquaintance with these types valuable. They may not be able, with the shrewdness of Sherlock Holmes or of his still acuter brother, to read a man's past, present, and future by a glance at him in the street, but they are able to gauge with considerable accuracy how far the history of the case, as given by the patient, is a truthful one, and how far it fits with his probable occupation in life. Calling must certainly have some influence over the physiognomy of the cabman, the omnibus driver, the butler, or the groom; each frequently possesses a type of face which wears so characteristic an expression as to make it not difficult to identify the vocation accompanying it. We speak also of the legal face, the scientific face, the ecclesiastical face, the musical face and artistic face, the dramatic face, and the military face. This is merely a broad classification but we disbelieve in the claims of the keen observer to an ability to differentiate to a finer degree. We have heard of hospital physicians who claimed to be able to say from a glance at the face that this or that man was a butcher, a grocer, a bank clerk, a lawyer's clerk, a commercial traveller, a stock-broker, a wine merchant, and so on. We think that the fame of these medical men as rough-and-ready detectives has been largely manufactured for them by enthusiastic clinical clerks; but that many medical men do possess great insight into the occupations of those who come before them is a truism. The question is often debated whether physiognomy is a growth of vocation or whether it shows that the vocation chosen is in accordance with the particular capacity and ability of the person to whom it belongs. In other words, if the barrister does not show the "legal face," the aspiring priest the "ecclesiastical face," the medical student the "physicianly face," the soldier the "military face," and so on, is that a sign that they have mistaken their calling? Is the man who "doesn't look a bit like a doctor" likely to fail because his physiognomic qualification is wanting? Or will he, whatever his original features, gradually come to acquire the type of the profession to which he belongs. The answer to the question is, of course, that both theories are right. A certain kind of face, the so-called scientific face, is so often seen among modern medical students as to prove that the owner of that cast of countenance is likely to adopt medicine as a career. Conversely, whatever the original cast of features a medical man may have possessed, the anxious, delicate, and absorbing work of medical practice will put a stamp upon them.

SIMPLE DIARRHŒA AS AN ABORTIVE FORM OF DYSENTERY.

AT the meeting of the Société Médicale des Hôpitaux of Paris on July 7th Professor C. Dopter called attention to the fact that simple diarrhœa may be an abortive form of dysentery. In an epidemic of dysentery manifest cases are always preceded by attacks of simple diarrhœa; then the epidemic becomes developed and side by side with cases of varying intensity are a certain number of cases of apparently simple diarrhœa; finally, the epidemic declines and the cases become less and less severe in proportion as they become less frequent and attacks of diarrhœa again appear. Patients suffering from this apparently simple diarrhœa may infect others and give rise to attacks of true dysentery. During an epidemic of dysentery it is impossible to establish dividing lines between cases of simple diarrhœa, mucous diarrhœa, muco-sanguineous diarrhœa, and sanguineous diarrhœa. Between the extremes are all possible intermediate forms. Jürgens has recently examined bacteriologically 25 cases of simple diarrhœa which occurred at the camp of Gruppe during an epidemic of dysentery. He failed to find the bacillus of dysentery in the fæces but in 21 of the cases the serum agglutinated this organism. Professor Dopter examined bacteriologically 11 cases of diarrhœa which occurred during an epidemic of dysentery. Seven of the cases were particularly mild; there was simple profuse diarrhœa (ten to 12 stools daily) accompanied by colic but without well-marked tenesmus and the symptoms rapidly declined in three or four days. In these seven the serum reaction was negative and in one the bacillus of dysentery was isolated. The remaining four cases did not yield to ordinary treatment and ran a prolonged course. But only symptoms of diarrhœa were observed; no trace of blood was found in the stools. There were from ten to 15 stools daily for 15 days in two of these cases, for 21 days in the third, and for 25 days in the fourth. In one case the bacillus of dysentery was isolated but in all the serum reaction was positive. Finally, serum treatment rapidly cured these patients in from two to five days. It is important to recognise the nature of such cases of diarrhœa, for no doubt it is by them that the disease is mainly transmitted. The same precautions should be taken with regard to them as in cases of manifest dysentery. When cases of diarrhœa occur during an epidemic of dysentery it is easy to take the necessary precautions but if they precede the epidemic or occur sporadically the difficulties of diagnosis are great. In

slight attacks there is nothing to guide the physician but if the attacks are prolonged, and especially if severe and producing an algid state with thready pulse, suspicion of their dysenteric nature should be aroused. The finding of the bacillus of dysentery would settle the question but this is attended with great difficulties. It is easy to find the bacillus in manifest cases of dysentery but the process becomes difficult as the stools become fæcal-like. The serum reaction is useful within certain limits. In a case of true dysentery the serum reaction becomes positive about the seventh or eighth day. In cases of ephemeral diarrhœa, even of dysenteric nature, the reaction is negative. But if the diarrhœa lasts a fortnight or more the serum reaction will then be found positive. The test ought to be performed with the two recognised types of the bacillus of dysentery, Shiga's and Flexner's, for they present different agglutinability with the serum of the same patient. Even if the results are negative dysentery should not be considered as excluded. Cases of diarrhœa occurring during an epidemic of dysentery should always be treated with the same precautions as if they were manifest cases of dysentery. Isolated cases of diarrhœa, especially those which occur during summer, should be treated as suspicious. Thus may be extinguished foci of epidemics of dysentery which begin as attenuated forms of dysentery and lead up to manifest cases, becoming more and more severe in proportion as they become more numerous.

THE HOUSING OF DOMESTIC SERVANTS.

ALTHOUGH our domestic servants are in large part drawn from a class amongst which housing is very far from what it should be it would seem in keeping with the fitness of things that in the houses and flats of those who are in a position to pay relatively high rents the servants should be provided with rooms in which there are adequate cubic space, light, and ventilation. We are afraid, however, from certain preliminary observations which we have made that in at least a considerable number of instances the servants are housed under conditions which, did they exist in the dwellings of the poor, would be open to strong criticism, their safety from such criticism in houses of the rich lying in the fact that external appearances are sometimes a little deceptive. It is somewhat surprising to find some of the very worst accommodation as regards servants' quarters in quite modern flats, with a rental of from £150 to £250 a year and situated in the most fashionable parts of the metropolis. To us it is astonishing to find that those who have so far succeeded in life as to be able to pay these rents should be content to house their servants under conditions in which they can never enjoy direct sunlight and where even diffused light is but a matter of a few hours daily even in midsummer. In flats such as these there are good, even imposing, reception rooms and, perhaps, two well-lighted bedrooms. For the rest the rooms, being in a projection at the rear and separated only a very short distance from the projection of the adjoining flat, are almost in darkness and but very imperfectly ventilated. It is this condition of affairs, necessitating, as it does, the constant deprivation of sunlight and the almost perpetual substitution of artificial light, which tends to promote the pale-faced anæmic appearance sometimes seen in servants in the employment of the better-off class. It is difficult to understand how the well-educated classes, knowing, as they must, the enormous value, *qud* health and the enjoyment of life, of light and fresh air, can allow themselves to take flats where they themselves are housed in comfort but where their servants live under conditions which, to say the least of them, must be eminently depressing. It would be well, in our view, if public opinion could be brought to bear so as to secure for servants proper accommodation in these flats in fashionable quarters. We should be glad to see this subject ventilated by the metropolitan medical officers of health in their annual reports and records furnished of the results of visits made to houses and flats with the object of ascertaining precisely how the domestic servants are housed.

METHODS OF SUPPRESSING THE ADULTERATION OF FOODS AND DRUGS IN THE UNITED STATES.

Mr. W. S. Glyn-Jones, barrister-at-law, in a communication to the Pharmaceutical Society,[1] referred to the adulteration of foods and drugs in the United States and the various standards of purity drawn up by the United States Board of Agriculture. These standards are based upon data representing materials produced under American conditions. It is of interest to note, for example, that white sugar must contain not less than 99·5 per cent. of sucrose and molasses not more than 25 per cent. of water. In Massachusetts the law may be enforced by prosecution. But more often a preliminary notification to an offending dealer, especially in the case of a first offence, to the effect that subsequent infraction of the law will be followed by prosecution, leads to the immediate withdrawal of adulterated foods from sale. A third method of enforcing the law is by publication. Under the laws of some States the only method of protecting the public lies in publishing in periodical reports lists of adulterated food with the brands and manufacturers' names and addresses. Sometimes lists of unadulterated brands are published as well. It is of interest to note that in Massachusetts it is illegal to give or to sell to a person under 18 years of age a cigarette, though the minimum age for snuff and tobacco is 16 years. It is illegal also to sell or to exchange any woven fabric or paper containing arsenic in any form. A detailed list of substances condemned as impure provides instructive reading. Thus, distilled water was rarely found pure, all samples examined being below the standard, in many cases containing higher residues than the tap water of the towns in which they were produced. The salutary effect of analytical supervision over foods and drugs is shown in a striking manner in the case of glycerine, only 5 per cent. of the samples examined in 1903 containing arsenic, as against 68·9 per cent. in 1899. This illustration serves also to show what can be done by persistent and systematic notification, since this result has been achieved with but a single prosecution in the courts. A most ingenious fraud was discovered in Brockton, Massachusetts. It was the custom of the proprietor of a store to keep all the whisky supplied to his patrons in the water tank of an unused water-closet. By an ingenious contrivance the ball-cock of the tank was so arranged that the inflow of water to the tank was usually cut off. When, however, a raid was expected the tank could, on a given signal to an attendant in charge, be emptied and flushed with water by pulling the chain, the whisky flowing down the sewer. There are various forms of adulterations which have been subdivided as follows by Mr. Lyman F. Kebler, chief chemist in the drug laboratory of the United States Department of Agriculture: (1) conventional adulterations to suit the tastes and demands of the public—e.g., bleached ginger and the artificial colouring of many products; (2) accidental or incidental adulterations arising from environment, carelessness, or incompetence; (3) arbitrary adulterations to comply with, or to take advantage of, certain fixed arbitrary standards; and (4) intentional adulterations for purposes of gain and competition. The last named is the most serious form of adulteration and is met with in many forms, a few of which are of interest:

[1] Pharmaceutical Journal, 1905, vol. lxxiv., p. 217.

borax, mixed with from 15 to 73 per cent. of sodium bicarbonate; phenacetin, mixed with acetic acid; potassium bromide substituted for potassium iodide; borax given for Rochelle salts; corn starch substituted for St. Vincent arrowroot; sound drugs mixed with inferior or exhausted drugs; honey mixed with cane sugar and glucose; pepper containing 60 per cent. of ground olive stones; beeswax mixed with 33 per cent. of cassava starch; turpentine, 25 per cent. of which in America is adulterated with kerosene; and cocoa labeled pure but containing corn and wheat starch and even powdered cocoa-shells. Many of these adulterations are not unknown in the United Kingdom. It is of interest to note the various laws of various States: thus, alum is prohibited in foods in Missouri; flour must be derived entirely from a single cereal (District of Columbia) and must contain from 9 to 18 per cent. of water, from 0·3 to 2 per cent. of ash, at least 10 per cent. of moist gluten and 5 per cent. of dry gluten (Porto Rico). Preservatives are forbidden in jellies (South Dakota), in sausages, butter-milk, and foods that can be otherwise preserved (Pennsylvania), and in dairy products (12 States). In some States the law requires the amount of preservative added to be stated on the label. Saccharin is prohibited in food (Washington). Tea must contain from 4 to 8 per cent. of ash, of which at least 40 per cent. must be soluble in water, and at least 30 per cent. of aqueous extract (Porto Rico). Bread must not contain alum, sulphate of copper, borax, sulphate of zinc, or other poisonous or harmful ingredients, nor must it contain more than 31 per cent. of water or less than 6·25 of albuminoids (District of Columbia). The use is forbidden of hermetically sealed cans the surface of which in contact with the preserved food is coated with an alloy containing over 2 per cent. of lead (Pennsylvania). Some of the States prohibit the use of copperas for colouring vegetables, whilst others place a limit on the quantity of copper allowed and insist that its presence shall be stated on the label. In Porto Rico bread must not be transported in baskets or on horseback but must be sent in covered carts provided with doors. Pies and sweetmeats must be carried in covered cases lined with oil-cloth or glass and upon all stalls and in retail shops and restaurants eatables must be protected from flies by means of metallic covers. In conclusion, reference may be made to a stringent law in North Dakota forbidding the distribution of samples of drugs for advertising purposes. This law makes it a misdemeanour for any person to deposit upon the doorstep or premises owned or occupied by another or to deliver to any child under 14 years of age any patent or proprietary medicine, cosmetic, disinfectant, or antiseptic, or any drug or medicine that contains poison or any ingredient that is deleterious to health, as a sample or in any quantity whatever for the purpose of advertising.

EFFECTS OF UNCORRECTED ASTIGMATISM.

IN a pamphlet entitled "The Nervous Symptoms produced in Children by Uncorrected Refraction and Muscular Errors" Dr. J. H. Claiborne of New York dwells on the difference between European and American children as well as adults in their sensitiveness to slight defects of refraction. He maintains that even the working classes in America are more highly strung than those of Europe and that the children in their schools are built of more nervous and sensitive tissues and he attributes the difference to the terrific pressure under which life is maintained in America. The symptoms which he enumerates, and which have particularly come under his notice in practice, are chronic headache and, more rarely, that form known as hemicrania, blepharospasm, reflex phenomena presented by the stomach as nausea and vomiting, and squint. He has not met with cases of epilepsy, paralysis or paresis of the ocular muscles, or of chorea but he thinks that uncorrected refraction may powerfully modify the mental and moral character of a child by rendering the acquisition of book learning difficult and painful. In another communication on the Axis of Astigmatism he states that the axis of astigmatism does not occur at haphazard. He has satisfied himself from his own observations on 1176 cases of astigmatism that in hyperopic astigmatism the arc of deviation from the normal is usually situated between the meridians of 45° and 135°, embracing therefore an arc of 90°. In myopic astigmatism the arc usually includes the axes of 135° and 165° or an arc of 30°, the zero of the scale starting on the right on both sides in the horizontal plane, as the frame is regarded from before. There is an arc of neutrality, which may be called the right arc of neutrality, of 30° lying between 15° and 45° on the one side of the circle and there is a left arc of neutrality which is between 135° and 165° on the other. The right arc of 30° lying between 15° and 45° has two axes of preference, 30° and 20°, and 30° occurs twice as often in hyperopia as in myopia, and myopia alone occurs at 20°. Within the left arc of neutrality, 135° to 165°, there is one axis of preference—viz., 150°, and this occurs with equal frequency in myopia and hyperopia. In 1176 cases of astigmatism 80 exceptional irregular cases were met with. Dr. Claiborne has devised a special form of Placido's disc, in which are drawn radiating lines in the preferred meridians in both hyperopic and myopic astigmatism with a convex lens behind a central aperture in the disc.

SUBJECTS FOR INVESTIGATION IN PHARMACOLOGY.

THERE is a certain analogy between the unwise speculator and the prescriber of new and little known drugs. The former transfers his investments from Consols which are practically safe to mining shares which may yield him a better return but are far more likely to swallow up his entire capital. The latter despises the wide range of drugs of vegetable, chemical, and animal origin which have been proved through a long course of years to have a definite value and prefers to rely upon new and comparatively untried drugs which may or may not yield him the desired results. It would, of course, be unwise to adopt an ultra-conservative position and to ignore new remedies altogether. New healing agents are most welcome when proved by clinical experience to possess advantages over older drugs. It is worthy of note that the older drugs still present problems which up to the present time have not been solved by the pharmacologist, the chemist, or the pharmacist. This fact is well shown in the Research List which has recently been issued to the press[1] by the British Pharmaceutical Conference. A similar list was commented on in THE LANCET[2] in 1902. In the list just issued many of the problems previously referred to are included as still unsolved. The active principles of many plants are unknown, including arnica, *Cimicifuga racemosa*, the bitter principle of the pericarp of bay berries, the bitter principles of calendula and chamomile, the purgative principle of castor oil, and the acrid principle of mezereon bark. Examinations are required of the red colouring matter of the petals of the poppy and of the active constituents of *Euphorbia pilulifera* and strophanthus. A comparison is desired of the constituents of simarouba bark with those of quassia, also of the two species of cascara sagrada—viz., *Rhamnus purshiana* and *Rhamnus californica*. A systematic examination is needed of damiana, a drug extensively used in the form of an extract of the leaves. It is reported to contain a bitter substance, resins, and volatile oil. The veratrine of the British Pharmacopœia is a mixture of several alkaloids, probably the crystalline veratrine

[1] Pharmaceutical Journal, June 3rd, 1905, p. 819.
[2] THE LANCET, Feb. 15th, 1902, p. 468.

and the amorphous veratridine. The question has not been settled whether pure veratrine might with advantage be substituted for this mixture of potent alkaloids. Apomorphine presents an interesting problem. It is well known that solutions of this alkaloid become coloured on keeping but it is uncertain whether such solutions retain their potency. Of potent drugs that are largely used in medicine, although we have no definite knowledge as to the strength of the preparations made from them, Cannabis indica, jaborandi, and ergot may be mentioned. Ergot is a drug possessing several constituents of different physiological value. Thus, ergotinic acid is soluble in water but insoluble in alcohol and produces paralysis of the spinal cord. Another principle of ergot, sphacelinic acid, on the contrary, is insoluble in water but soluble in hot alcohol and produces contraction of the blood-vessels. A third substance, ergotinine or cornutine, is probably the most important; it causes contraction of the uterus. It would appear to be particularly necessary to possess means of determining the strength of preparations of ergot, at least in terms of ergotinine. The botanical origin of several well-known drugs is still doubtful and requires investigation, the drugs of doubtful origin including the varieties of asafœtida and galbanum, the gum-resin opoponax, and the varieties of copaiba that are met with in commerce. Many of the problems referred to will demand for their solution the collaboration of pharmacologists and pharmacists.

THE TREATMENT OF EPITHELIOMA BY RADIUM.

THE *Clinique Ophtalmologique* of July 25th contains an article by Dr. A. Darier on the Treatment of Epithelioma (Superficial) by Radium. In one case the disease commenced as a hard nodule on the ala of the nose eight years before being seen by Dr. Darier. It was originally treated by the application of tincture of iodine. Two years subsequently it was completely removed by the knife but it reappeared and continued to extend, presenting the characters of a typical epithelioma and affecting the side of the nose, the inner angle of the eyelid, and the outer surface of the lower lid. Dr. Darier applied the galvano-cautery to various points of the edges of the ulcer, then touched them with chromic acid, and finally powdered the surface with methyl blue. The results seemed to be satisfactory and the patient went home. After the lapse of a few months she returned with a trilobate tumour affecting the upper lid and declined to undergo any further operative treatment. Dr. Darier then suggested the employment of radium, which was accepted, and he proceeded to apply to each of the three lobes of the tumour five milligrammes of sulphate of radium of 500,000 units activity attached with enamel varnish to a plate of copper one inch square. The application lasted 90 minutes (30 minutes to each lobe); three days afterwards the exposure was repeated. In the course of eight or ten days the tumour had melted away and only a small ulcer remained. The applications of radium were continued every eighth day and in a month's time a complete cure was effected. There only remained a slight depression and redness of the adjoining skin. Dr. Darier prefers the radium emanations to the x rays on account of their being far more easily managed. The best means of ascertaining the activity of the substance that is about to be used consists in placing it in contact with the skin of the forearm for a period of from five to 20 minutes and noting the number of days that elapse before the redness characteristic of radium is produced. If the radium be pure and separated from the skin by a layer of varnish only the burn may appear immediately. Inclosed in a glass tube it may, if the glass be thick, lose as much as 90 per cent. of its activity. Mica, celluloid, and caoutchouc absorb a much smaller proportion. Dr. Darier uses the sulphate suspended in a varnish which is applied to a metal and strongly heated. This in different strengths he uses for the treatment of epithelioma, chalazion, warts, nævus, trachoma, conjunctival tuberculosis, Parinaud's conjunctivitis, spring catarrh, and certain forms of parenchymatous keratitis. The little apparatus is applied for 20 or 30 minutes every second, third, or even eighth day.

A SANATORIUM FOR CONSUMPTIVE CHILDREN.

MOST of the existing sanatoriums for tuberculous patients receive only adults, but children are, nevertheless, quite as liable to suffer from tuberculous disease and, in fact, have a special predisposition to some forms of it. In the interests of these helpless little sufferers an appeal is being made on behalf of a proposed sanatorium for consumptive children which it is proposed to erect on a site in Norfolk between Holt and Cromer. The list of patrons and the general committee include many well-known and influential names, about half the number being ladies. The intention is to commence with a small building capable of accommodating about 25 children and the necessary staff but so planned as to allow extensions being made when opportunity offers. A sum of £8000 is required at the outset. Donations and subscriptions may be paid to the "Children's Sanatorium Account" at Messrs. Hoare's Bank, 37, Fleet-street, London, E.C., or may be sent to Mr. Thomas H. Wyatt, M.V.O., the honorary secretary, at the temporary address, The Rectory, 42, Great Ormond-street, London, W.C.

"FONDATION OPHTALMOLOGIQUE ADOLPHE DE ROTHSCHILD."

IN a pamphlet of 32 pages Dr. A. Trousseau gives an account of an ophthalmic institute which has been built at Paris at the cost of the late Baron Adolphe de Rothschild who left a large sum for its construction and endowment. It has received the name of "Fondation Ophtalmologique Adolphe de Rothschild" and Dr. Trousseau was named in the will to be the first director. The building was intrusted to two architects who have spared no pains to adapt it in every way to the purpose for which it was designed. A reproduction of a photograph is appended to the pamphlet which shows the façade of a handsome edifice of four storeys with attics. It is situated at the angle of the junction of the Rue Manin and of the Rue Priestley, is in close relation with numerous tramways, and by the metropolitan railway is in connexion with the heart of Paris. It is well lighted, as Dr. Trousseau, who seems to have been consulted largely, is not a believer in darkness in the ordinary treatment of ophthalmic affections. It is 250 feet above the level of the sea and has an area of about 20,000 feet. Behind it is a large garden for the exercise and the recreation of the patients. The hospital looks to the north-east over the park of Buttes-Chaumont and the pleasure ground is therefore to the south-west. The operating theatre faces the north. The drainage and the ventilation have been carefully considered. The floors are of iron covered with cement. An agreeable temperature is maintained by a steam engine working at low pressure. The whole building is freely illuminated by electricity generated on the spot and there are all kinds of electrical apparatus capable of being utilised in the treatment of disease such as is required for galvano-cautery, photophores, and exploratory lamps. Corners and ledges that might harbour dust have been avoided as far as possible. There are a laundry, a disinfecting room, and a destructor for burning all dressings. Radiography can be practised. Every arrangement is made for the sterilisation of instruments, dressings, and for personal cleanliness. The hospital contains 36 beds. There are to be no paying patients. The benefits which it

affords are to be open gratuitously to all. A novel and good feature of the service of the hospital is that consultations are to be held three times daily, in the morning from 9 to 12, in the afternoon from 1 to 3, and in the evening for working men who have no other available time, from 7 to 8. The establishment as a whole is worthy of the liberality of the late Baron A. de Rothschild and of the care and attention which have been bestowed upon it by Dr. Trousseau.

THE DISTRIBUTION OF CARBONIC ACID.

To what an extent the health and comfort of human beings depend upon the proportion of carbonic acid gas in the air which they breathe is known to all students of hygiene. In the life of other organisms, also, the substance plays an important part; thus, Brown and Escombe have shown that the living leaf assimilates carbonic acid according to the pressure of the gas in the surrounding atmosphere, while Loeb has demonstrated the influence which the gas exercises upon the occurrence of parthenogenesis. Normally there is present in the air about 0·04 per cent. of carbonic acid and when local interference—e.g., the absence of efficient ventilation—is eliminated this ratio exhibits little variation. All the more curious, therefore, are certain observations upon the composition of the air in the vicinity of the island of Disko which are recorded in No. 26 of *Meddelelser om Grønland*. The island is situated near the west coast of Greenland in a region where there are no artificial conditions likely to introduce atmospheric modifications, yet a Danish man of science, M. A. Krogh, found that at different seasons the proportion of carbonic acid in the air varied from 0·025 to 0·07 per cent., the highest amounts being present when the wind was blowing from the north and west and the lowest occurring in conjunction with southerly and easterly winds. He concludes that the island of Disko must be near the margin of an area in which carbonic acid gas is liberated and as to the source of the supply he offers an ingenious explanation suggested by a circumstance which at first sight appears to have not the remotest connexion with the subject—viz., the thickness of the shells of certain molluscs. Jensen had observed that the calcareous portion of molluscan shells taken from deep water was thin and sometimes eroded as if by the action of some chemical agent and it has also been noted that the shells of dead molluscs falling into deep water are speedily dissolved. These effects it is thought can only be satisfactorily explained by assuming that in the depths of the sea there is much carbonic acid in solution and Krogh has supposed that in Baffin Bay there is an upwardly directed stream of water loaded with carbonic acid, which gas is liberated when the water containing it reaches the surface.

THE STERILISATION OF SO-CALLED DEGENERATES.

WE have received from Dr. R. Rentoul a long communication in reference to our annotation of July 29th entitled "The Sterilisation of So-called Degenerates." On several occasions we have alluded to Dr. Rentoul's views on this topic and as the statement of them which has just been forwarded to us presents no novel features we are unable to find space for more than a brief notice of it. The familiar statistics from the reports of the Commissioners in Lunacy and from other sources are set forth and are made the basis of unconvincing arguments but there is no attempt to formulate a practical scheme for the application of the principle of sterilisation to existing social conditions. There is, on the contrary, a want of clearness as to the matters really at issue which detracts from the value of the suggestions offered. "At present," says Dr. Rentoul, "the ovaries, tubes, and uterus are removed when persons suffer from diseases of those organs," and after mentioning rather superfluously some instances he proceeds: "No one objects to this sterilisation and if we so agree why can we not agree to extend its beneficial action to the prevention of mental diseases?" The cases are obviously not parallel, for in the one the persons operated upon are agreed as to the advisability of the operations, while in the other the agreement, so far as it goes, is merely on the part of those who may be called in to operate. Dr. Rentoul appears to be under the impression that because the provisions of the Lunacy Act, 1890, do not meet the difficulties connected with the segregation of the unfit nothing more can be accomplished in this direction by legislation. For ourselves we are content to wait in order to see what the deliberations of the Royal Commission on the Care of the Feeble-minded may bring forth.

THE RELATIVE VALUE OF BACTERIOLOGICAL AND CLINICAL SYMPTOMATOLOGY.

THE quarantine camp at Tor, a village on the coast of the peninsula of Sinai and not far from Suez, is an important place in connexion with the annual pilgrimage to Mecca. As the risk of the dissemination of epidemic disease by the pilgrims on returning to their homes is recognised even in Mahometan countries, a careful supervision over these travellers is exercised at various points and an outline of the routine work of the camp at Tor last March and April is given in two pamphlets published by the Conseil Sanitaire Maritime et Quarantenaire d'Égypte. One of them is by Dr. Zachariadis Bey, director of the camp in question. On account of the presence of plague in Egypt all the Egyptian pilgrims as well as foreigners passing through Egypt had to undergo quarantine at Tor but no case of the disease was discovered. The prevailing diseases this year were pneumonia and dysentery. The general health of the pilgrims was not so good as last year when there were 79 deaths among 29,964 pilgrims, whereas this year there were 161 deaths among 33,036 pilgrims. Dr. Zachariadis speaks highly of the services rendered by the medical staff which included at least one female practitioner (*doctoresse*). Three bacteriologists were engaged at the camp, one of whom (Dr. Felix Gotschlich) had the special duty of searching for the cholera vibrio and was the author of one of the two pamphlets to which we have referred. The decision as to whether epidemic disease existed among the pilgrims rested with Dr. Zachariadis as being director of the camp and this year, not for the first time, he decided that the presence or absence of clinical symptoms among the pilgrims was of far more diagnostic importance than the bacteriological results, whether positive or negative, obtained in the laboratory. For instance, he states that in 1895 he declared the camp infected with cholera and took measures accordingly some time before the bacteriologists succeeded in finding the cholera bacillus; eventually, however, the bacillus was found. On the other hand, in 1897 he declared the camp healthy although the bacteriologists had found the cholera bacillus; there were then 6000 pilgrims in the camp, none of whom presented symptoms of cholera, and there were no outbreaks of the disease in the places to which they returned in their own countries. During the pilgrimage of the present year a similar conflict of opinion arose. In six fatal cases which [illegible]er necropsy were officially described as either colitis or dysentery Dr. Gotschlich found a bacillus which in his opinion was beyond all doubt that of cholera.[1]

[1] The words of Dr. Gotschlich are as follows, the italics being his own: "En *résumé* il résulte de notre examen approfondi des six cultures en question, d'après les méthodes les plus variées, tant de la séroréaction que de l'examen des caractères morphologiques, biologiques, et culturaux, que *ces vibrions appartiennent tous à une même et unique espèce et sont tous identiques avec le vrai vibrion de choléra de Koch.*"

Dr. Zachariadis, however, relying on the complete absence of clinical symptoms, declared the camp to be free from cholera and no quarantine restrictions were imposed. Dr. Gotschlich admits that there were no clinical symptoms of cholera among the pilgrims and his explanation of the apparent discrepancy is that the disease was "latent" in these six cases. He quotes an instance of the vibrio of cholera remaining "latent" for 50 days during a patient's convalescence.

THE medical officer of health of Cape Colony states that during the week ending July 15th only 1 new case of plague was discovered in the colony, the patient being a European female at East London. One patient remained under treatment in the hospital at Port Elizabeth and 2 in the hospital at East London. A few plague-infected rats and mice were found at Port Elizabeth, East London, and King William's Town. The commissioner of public health for Queensland, Australia, reports that the last case of plague in Brisbane was discovered on June 14th; on July 1st this patient was discharged from the hospital which was then closed. Among 172 rats and mice which were bacteriologically examined during the week there was no evidence of plague, the last infected rat having been found on June 23rd. At Maryborough in Queensland 10 cases of plague occurred recently but all the patients and "contacts" have now been discharged from the hospital. The Governor of Mauritius has informed the Colonial Office that during the week ended August 4th there were 6 cases of plague reported and 6 deaths occurred.

ON August 14th a donation of 100 francs was sent from the medical officers of the French fleet to the funds of the Royal Portsmouth Hospital. In a note M. le Médecin en Chef H. Léo "remercie bien vivement messieurs les médecins de l'Hôpital Royal de Portsmouth, et, avant de quitter le port, il les prie d'agréer, avec les meilleurs souvenirs, la sincère expression de les sentiments reconnaissants et devoués."

THE Umberto I. prize of £200, awarded quinquennially in Italy in memory of H.M. King Umberto I., the subject of the competition being orthopædic surgery, has been awarded to Professor Oscar Vulpius of Heidelberg for his work "Die Sehnenüberpflanzung" (Tendon Transplantation).

METROPOLITAN HOSPITAL SUNDAY FUND.

A MEETING of the council of the Metropolitan Hospital Sunday Fund was held on August 11th, at the Mansion House, to consider the minutes of the general purposes committee recommending: (1) an alteration in the laws of the constitution so as to enable the Queen Victoria Jubilee Institute for Nurses to receive a grant; and (2) an increase in the secretary's salary; also to receive the report of the committee of distribution and to order payment of awards to hospitals and dispensaries.

In the absence of the Lord Mayor Sir SYDNEY WATERLOW presided. Among those present were Sir William S. Church, the Hon. Sydney Holland, Sir Stephen Mackenzie, Sir James Ritchie, the Rev. E. H. Pearce, Sir Henry Burdett, Mr. Wakley, Dr. J. G. Glover, Mr. J. Mackrell, Mr. F. H. Norman, Mr. R. B. Martin, M.P., and the Rev. A. A. Harland.

In the annual general report for the year 1905 the committee of distribution recorded with regret the resignation of Captain Cundy who had been an active member of the committee since 1894 and was now unable to give the necessary time to the work of the Fund. Mr. George Herring had again most liberally offered to add one-fourth to the amount collected in places of worship and had also generously extended his offer to amounts collected in the City, whether collected in places of worship or not. The total amount of the Fund at the present time was £61,290, to which had to be added the amount of £12,500 placed at the disposal of the Lord Mayor by the executors of the will of the late Mr. Wyndham Francis Cook in response to the appeal to City men made on behalf of the Hospital Sunday Fund, making a total of £73,790. The committee now recommended the distribution of £71,466 10s. to 162 hospitals and 60 dispensaries. The committee having been unofficially informed that the committee of the City Orthopædic Hospital was prepared to amalgamate with the other two orthopædic hospitals, subject to the seven propositions put forward by King Edward's Fund being somewhat modified, recommended a grant to be made subject to the amalgamation being carried through. The committee desired to impress upon institutions receiving grants from this Fund that awards were made towards the maintenance of patients and not for building purposes. It recommended that in calculating the cost of out patients in future the number of attendances be taken instead of the number of cases. This year 223 institutions had made application for grants from the Fund, being five more than in 1904. One hospital which applied for a grant was considered ineligible. The committee having reduced the bases of award in 27 cases this fact was intimated to each hospital interested in accordance with Rule V. Twelve deputations attended the committee and after hearing their cases the final awards were determined. 5 per cent. of the total sum collected was set apart to purchase surgical appliances (in obedience to Law XII.) in monthly proportions during the ensuing year. In compliance with an order of the council and for the special use of its members tables of statistics had been prepared as usual, showing an analysis of the number of beds in hospitals, the cost of patients both at hospitals and dispensaries, and the proportionate expense of management, as well as other valuable information.

On the motion of the CHAIRMAN, seconded by Mr. MARTIN, M.P., it was decided to increase the secretary's salary from £400 to £500 per annum.

Mr. F. C. CARR-GOMME said that at the last meeting of the general purposes committee a very influential deputation from the Queen Victoria Jubilee Institute of Nurses was received asking that the institute might receive a grant from the Fund. The committee heard of the work which the institute was doing and it was shown that in consequence of its having had to spend nearly all the capital it could part with it would be reduced in future years in its income. The work which the institute was doing was really cognate to the work of the hospitals; and the nurses attached to the institute were able to prevent many cases from coming to the out-patients' departments of the hospitals. By this means they were taking a large part in hospital work; and the committee felt that it would be doing a good thing to include the institute in the Fund. The laws of the constitution did not, however, permit of this being done and he moved that an addition should be made to these laws to the effect that the committee of distribution do put aside a certain sum of money for the purposes of a grant to the Queen Victoria Jubilee Institute of Nurses.

Mr. MARTIN, M.P., seconded the motion, pointing out that a similar course was taken by the Fund in order to include a grant to the Surgical Aid Society.

Mr. MACKRELL did not see how it was logically possible to give a grant to one organisation of nurses and to exclude other organisations.

Mr. NORMAN did not see how it would be possible to investigate the efficiency of the work done by nursing institutions in a way analogous to that which the Fund used for testing the efficiency of hospitals.

The Rev. E. H. PEARCE moved as an amendment that the matter be referred to the general purposes committee for further investigation.

The Hon. SYDNEY HOLLAND agreed that other nurses besides those referred to ought to receive a grant from the Fund. The work of attending to patients both before and after treatment at hospitals by nurses in the districts round London was helpful to the out-patient departments.

Sir HENRY BURDETT seconded the amendment. He said that the work done by district nurses was a useful one and in his opinion the reform which all desired in the out-patient department of hospitals would not be achieved until there was some unifying connexion between the district nurses and the hospitals of the districts in which they worked.

The amendment having been carried was put as the substantive motion and adopted.

The CHAIRMAN moved the adoption of the report. He said that this was the thirty-third year of the Hospital Sunday Fund. It was founded in 1872 and the total amount received and distributed by the committee since that date had been £1,382,160. He thought they might say that the Fund had been a great success. The collections this year at present exceeded £75,000 and as the financial year did not end until Oct. 31st a considerable increase on this amount might be expected. The collections in places of worship could not yet be estimated. There were very serious decreases in some of the larger collections but, on the other hand, there were many increases. The sum of £12,500 placed at the disposal of the Lord Mayor for this Fund had established a record year, the amount collected largely exceeding the figures reached in any previous year. Mr. George Herring, to whom this Fund was so much indebted, had this year, in addition to adding one quarter to the amount collected in places of worship, allowed the secretary to state that any money collected in the City should be considered as having been given in places of worship. This year 222 institutions would receive grants, the amount distributed being over £71,000.

Sir JAMES RITCHIE seconded the motion.

Dr. GLOVER asked a question with reference to the expenditure of hospitals and the CHAIRMAN, in reply, stated that the subject was one which was constantly under the discussion of the committee. Everything had been done to induce the hospitals to be as economical as they could, having regard to efficiency.

Mr. MACKRELL also spoke of the work done by the secretary in this respect.

On the motion of Sir WILLIAM CHURCH, seconded by the Hon. SYDNEY HOLLAND, the thanks of the council were accorded to Mr. Herring for his generous and continued interest in the Fund.

Sir HENRY BURDETT proposed, and the Rev. E. H. PEARCE seconded, a vote of thanks to the committee of distribution for the care bestowed by it in the preparation of the awards. Sir Henry Burdett incidentally mentioned that the initiative of the Fund really belonged to the late Dr. James Wakley whose articles in THE LANCET advocated the cause of a Hospital Sunday Fund for the metropolis.

On the motion of the Rev. Mr. HARLAND, seconded by Mr. T. J. WEST, a vote of thanks was given to the editors of newspapers who had pleaded the needs of the hospitals and advocated the cause of the Fund, special reference being made by the proposer to the valuable help given by THE LANCET and the *Hospital*.

A vote of thanks to the Lord Mayor, the Right Hon. Sir John Pound, who as president and treasurer had devoted his valuable time and influence to the well-being of the Fund, was proposed by Dr. GLOVER and carried with acclamation, as was also a vote of thanks to the chairman, proposed by Sir EDMUND HAY CURRIE and seconded by Mr. WAKLEY, who reminded Sir Sydney Waterlow of his meeting the late Canon Miller and the late Dr. James Wakley in the offices of THE LANCET 33 years ago.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Birmingham.—The report of the medical officer of health of Birmingham, Dr. J. Robertson, on the health of the city during 1904 has just been issued. The year has been memorable as the one during which the supply of pure water from Wales was effected. The birth-rate for the year was the lowest on record, being 31·5 per 1000. The death-rate was 19·3, compared with 17·2, the death-rate for 1903. As in previous years the death-rate was much higher in the poorer and more congested districts than in the more salubrious parts. In St. Bartholomew's ward the rate was 28·7, whilst in the Edgbaston and Harborne ward it was 12·7. The death-rate among infants was particularly high and showed a similar discrepancy in the different districts. In the Edgbaston and Harborne ward it was 133 per 1000 births, whilst in St. Mary's ward it was 331 per 1000. The zymotic death-rate was 3·44, against 2·32 in 1903. The health of Birmingham during 1904 therefore contrasts unfavourably with that during the previous year. There were eight cases of small-pox notified and, as showing the value of the means provided for such cases, it is interesting to learn that they represented seven separate importations. There was a very satisfactory decrease in the number of cases of typhoid fever, there being only 248 cases against 348 in 1903. An even greater proportionate decrease was also noted in the number of cases of scarlet fever. There was a slight increase in the death-rate from influenza, measles, and tuberculosis. No fewer than 1110 persons died from diarrhœa and 400 died from cancer. Dealing with the housing question, Dr. Robertson states that 1119 houses were reported as unfit for human habitation, as against 304 in 1903, 450 in 1902, 15 in 1901, and none in 1900. Closing orders were obtained in respect of 233 houses, 127 were demolished, and 242 were made fit for habitation. Much excellent work has been done in the way of securing greater cleanliness in the milkshops of the city and no outbreak of disease could be traced to any of the milk supplies. The report for the half year ending July 1st, 1905, has also been presented and from the general mortality-rate and the absence of serious epidemic disease the health of the city has been better than in any similar period since statistics have been kept. The death-rate was 16·2, compared with 19·8 per 1000 for the same period in 1904. 33 cases of small-pox had been treated at the city hospital, of which 19 were discharged cured and 14 remained in hospital on July 1st. The death-rate for the first week of July was noteworthy as being the lowest weekly rate ever recorded, being 10·6 per 1000. For the second week the death-rate rose to 14.

Wolverhampton County Borough.—The annual report for 1904 on the health of Wolverhampton has just been issued and Dr. H. Malet, the medical officer, is able to make the gratifying statement that of the large towns the death-rates of which are tabulated Wolverhampton was last year thirty-eighth on the list, whereas in 1903 it was eleventh, and in 1902 and 1901 eighth. No death had occurred from measles. The birth-rate was low, 29·8 per 1000; so also was the death-rate (16).

Warwickshire County District.—Dr. A. Bostock Hill, the medical officer of health of Warwickshire, has presented his report for 1904. For the first time for some years he has been able to record an increase in the birth-rate; the increase is due to the higher rate than usual in the urban districts. The death-rate was slightly higher than in 1903 and 1902, being 14·8 as compared with 13·69 and 13·45 respectively for the two previous years. There was an increase in the zymotic death-rate but this was due to diseases over which sanitary authorities have but little control. 73 cases of small-pox had been notified. There had been an increased fatality from diarrhœa and the deaths from whooping-cough were nearly double those recorded in 1903. He attributed the prevalence of the latter disease to the carelessness of parents in not sufficiently isolating children suffering from the infection. The mortality from pulmonary tuberculosis was less than in 1903 but rather higher than in 1901 and 1902. He hoped it would become the habit of all the district councils to offer disinfection by their officers of all houses where deaths occur from this disease.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7643 births and 5226 deaths were registered during the week ending August 12th. The annual rate of mortality, which had been 13·4, 15·0, and 17·0 per 1000 in the three preceding weeks, further rose last week to 17·5 per 1000. In London the death-rate was 17·3 per 1000, while it averaged 17·5 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 5·0 in Hornsey, 6·6 in Ipswich, 6·7 in King's Norton, 8·1 in Croydon, 8·5 in Walthamstow, 8·7 in Rotherham, 9·5 in West Hartlepool and in Gateshead, and 9·6 in Halifax; the highest rates were 23·0 in Grimsby, 23·4 in Hanley, 23·5 in East Ham, 23·7 in Norwich, 24·4 in Warrington, 24·7 in Birkenhead, 25·5 in Sheffield, 25·8 in Bootle, 26·1 in Merthyr Tydfil, 28·3 in Wigan, and 38·4 in Rhondda. Excluding 39 deaths due to the colliery explosion at Watts Town the death-rate in Rhondda during the week would have been 22·1·

The 5226 deaths in these towns last week included 1626 which were referred to the principal infectious diseases, against 612, 1101, and 1507 in the three preceding weeks; of these 1626 deaths, 1376 resulted from diarrhœa, 77 from whooping-cough, 70 from measles, 47 from diphtheria, 35 from scarlet fever, and 21 from "fever." No death from any of the principal infectious diseases was registered last week in Hornsey or in Burton-on-Trent; and while Croydon, Hastings, King's Norton, Smethwick, Halifax, and Rotherham had the lowest death-rates from these diseases, the highest rates were recorded in West Ham, Norwich, Walsall, Grimsby, Birkenhead, Liverpool, Bootle, Wigan, Manchester, Sheffield, Hull, and Rhondda. The greatest proportional mortality from measles occurred in Barrow-in-Furness, Sunderland, Merthyr Tydfil, and Swansea; from whooping-cough in Hanley and Middlesbrough; and from diarrhœa in West Ham, Norwich, Walsall, Grimsby, Birkenhead, Bootle, Wigan, Sheffield, Hull, and Rhondda. The mortality from scarlet fever, from diphtheria, and from "fever" showed no marked excess in any of the large towns. No death from small-pox was registered last week in any of the 76 towns. No small-pox cases remained under treatment in the Metropolitan Asylums Hospitals at the end of last week. The number of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday last, August 12th, was 2670, against 2485, 2550, and 2632 on the three preceding Saturdays; 355 new cases were admitted during the week, against 304, 352, and 366 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 117, 116, and 111 in the three preceding weeks, were 112 last week, the number in the corresponding period of last year being 121. The causes of 40, or 0·8 per cent., of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Portsmouth, Bristol, Nottingham, Salford, and Leeds, and in 46 other smaller towns; while the largest proportions of uncertified deaths were registered in Norwich, Liverpool, Wigan, Blackburn, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·2, 15·3, and 14·8 per 1000 in the three preceding weeks, further fell to 13·8 per 1000 during the week ending August 12th, and was 3·7 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 10·8 in Dundee, 11·5 in Aberdeen, and 11·6 in Paisley to 16 6 in Leith and 17·8 in Greenock. The 463 deaths in these towns last week included 44 which were referred to diarrhœa, 10 to whooping-cough, eight to measles, two to scarlet fever, and one each to diphtheria and "fever," but none to small-pox. In all 67 deaths resulted from these principal infectious diseases last week, against 61, 66, and 94 in the three preceding weeks. These 67 deaths were equal to an annual rate of 2·0 per 1000, which was 3·4 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 22, 39, and 59 in the three preceding weeks, fell last week to 44, of which 34 occurred in Glasgow, and two each in Edinburgh, Dundee, Leith, and Greenock. The deaths from whooping-cough, which had been 12, 14, and 14 in the three preceding weeks, were ten last week, and included five in Glasgow and two in Edinburgh. The fatal cases of measles, which had been 21, eight, and 15 in the three preceding weeks, fell to eight last week, of which five were registered in Glasgow and two in Perth. The deaths from diphtheria, which had been three, five, and two in the three preceding weeks, declined to one last week, the fatal case having occurred in Perth. The deaths referred to diseases of the respiratory organs in these towns, which had been 62, 70, and 48 in the three preceding weeks, further fell to 33 last week, but were six in excess of the number in the corresponding period of last year. The causes of two, or 0·4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·1, 20·8, and 21·2 per 1000 in the three preceding weeks, fell to 19·7 per 1000 during the week ending August 12th. During the past four weeks the death-rate has averaged 20·5 per 1000, the rates during the same period being 15·0 in London and 16·1 in Edinburgh. The 143 deaths of persons belonging to Dublin registered during the week under notice were 11 below the number in the preceding week and included 25 which were referred to the principal infectious diseases, against 20, 22, and 29 in the three preceding weeks; of these, 24 resulted from diarrhœa and one from diphtheria. These 25 deaths were equal to an annual rate of 3·4 per 1000, the mean rates last week from the principal infectious diseases being 5·1 in London and 0·8 in Edinburgh. The fatal cases of diarrhœa, which had been 18, 20, and 25 in the three preceding weeks, fell last week to 24. The deaths in Dublin last week included 49 of children under one year of age and 32 of persons aged 60 years and upwards; the deaths of infants and those of elderly persons both showed a decrease from the numbers registered in the preceding week. Three inquest cases and two deaths from violence were registered; and 50, or more than a third, of the deaths occurred in public institutions. The causes of seven, or nearly 5 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE undermentioned Surgeons have been promoted to the rank of Staff Surgeons in His Majesty's Fleet, viz.:—Albert Xavier Lavertine (dated May 15th, 1903); John Charles Rowan (dated Nov. 12th, 1903); William Rudolf Center and William Milne Keith (dated May 13th, 1904); Arthur Richard Harrie Skey and Frank Hutton Nimmo (dated Nov. 10th, 1904); and Walter Henry Ormonde Garde (dated May 25th, 1905).

ROYAL ARMY MEDICAL CORPS.

Colonel (temporary Surgeon-General) W. F. Stevenson, C.B., K.H.S., is placed on retired pay (dated August 1st, 1905). The undermentioned Majors are placed on retired pay (dated August 1st, 1905):—J. H. Brannigan, B. A. Maturin, A. P. H. Griffiths, H. T. Baylor, and W. S. Boles.

IMPERIAL YEOMANRY.

Berks: Surgeon-Captain J. H. Waters to be Surgeon-Major (dated August 16th, 1905).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Norfolk: Surgeon-Lieutenant W. O. Beddard to be Surgeon-Captain (dated August 16th, 1905).

Rifle: 3rd Lanarkshire: John Paton to be Surgeon-Lieutenant (dated August 16th, 1905). 14th Middlesex (Inns of Court): Surgeon-Lieutenant A. M. Ware to be Surgeon-Captain (dated July 24th, 1905).

L'ENTENTE CORDIALE.

Portsmouth has given a magnificent reception to the French Fleet and the effect upon our visitors cannot be other than of a happy and abiding character. The spirit of *l'entente cordiale* has again been apparent between the medical men of the two countries. On August 11th a number of the French medical officers visited Haslar, among whom were Dr. Langier, Médecin Principal de la Marine, and Dr. H. Lóo, Médecin en Chef, and inspected the various departments of the Naval Hospital. Later in the day they visited the Royal Portsmouth Hospital and were entertained by the medical staff.

THE JAPANESE RED CROSS SOCIETY.

An article in the *Times* of August 15th on the organisation of the Japanese Red Cross Society will be read with interest by all who are in sympathy with the benevolent work of Red Cross societies. We reproduce the first paragraph:—

> The Red Cross Society of Japan is, by its creation, the last of Red Cross societies, but it is by far the first and foremost of these societies by its splendid organisation, its wealth, and its power for good. The Japanese Red Cross Society had recently 980,000 members; its funds in hand amounted before the war to £794,000; and it possessed an annual income of £231,000. At present it should have about a million members, and its yearly income should be about £300,000. As wages are about five times higher in Great Britain than they are in Japan the value of money is about five times greater in Japan than it is in this country, since a British Red Cross Society of equal importance to that of Japan would require a war reserve of £4,000,000 and an annual income of about £1,500,000, which, by-the-bye, would be 20 times larger than that of one of the wealthiest of London hospitals. The matchless services of the Japanese Red Cross Society during the present war are too well known to require description and

the few figures given in the foregoing prove how far ahead of all nations is Japan by her Red Cross Society. As, owing to Queen Alexandra's generous appeal, this country is at last endeavouring to create a Red Cross service worthy of Great Britain, we might learn from Japan how to organise it, although England originally was Japan's teacher in these matters.

Correspondence.

"Audi alteram partem."

INEBRIETY A DISEASE AND THEREFORE TO BE TREATED BY THE MEDICAL PROFESSION.

To the Editors of THE LANCET.

SIRS,—It is now becoming generally recognised that chronic inebriety is a disease but the majority of medical men have never taken its treatment seriously in hand. There are two reasons for this. First, the belief that the victim of the drink crave must be removed from his home and placed in some retreat or sanatorium in order that the treatment may be successfully carried out and, second, because the drugs used and the methods of treatment adopted in these highly advertised institutions have been kept secret. Both these objections have now been removed. The methods of treatment have been published by Dr. C. A. McBride and Mr. S. Blackwell Fenn and my own results prove that the treatment can be carried out by the ordinary medical attendant without removing the patient from his own home. The hypodermic injection of atropine has undoubtedly a restraining effect upon the craving for alcohol and if with this is administered strychnine a powerful tonic effect is produced which will soon remove the terrible morning depression from which drinkers suffer. In addition to this all that is needed is a suitable diet and a medicine by the mouth to correct any disturbance which is hindering the return to health, such as calomel for the liver, bromide and chloral for sleeplessness, or cinchona and capsicum as a pick-me up. And, indeed, these will only be required for the first few days. My cases have been treated as out-patients, coming to my house twice a day to receive the injections. There is in this more than one obvious advantage. If a patient will come of his own free will to a medical man's house for treatment it shows that he has a real desire to be cured. And, again, if he gives up his drinking habits while in the midst of temptation he is likely to keep straight, avoiding as he does the risk which arises when, after treatment in a sanatorium, the patient returns to the scene of his former temptation.

Of course, no treatment will insure that the man will never fall again. Neither is it possible to change the drunkard into a moderate drinker. If, after being an abstainer for a time, he argues thus with himself, "Now I have lost the craving for alcohol I am like other men and can take a little with safety"—if he acts upon this assumption he will soon find, to his cost, that the old craving will return. His only safety lies in being a total abstainer. Another advantage of this out-patient system of treatment is that it can be applied to the poor as well as to the rich and, again, being carried out by the family medical man, the patient is not a marked man and stigmatised as one who has been in an inebriate home. Some of my patients have been treated under most unfavourable conditions but even when living in a common lodging-house with its usual surroundings of drink and squalor the craving has gone and the patient has risen above his environment.

I should like to see medical practitioners generally taking up the treatment of this disease. I am sure much good would result. Many an inebriate would be cured and many a man would be saved from falling a victim to the disease. For medical men coming into more immediate contact with the results of excess would become exceedingly cautious in prescribing alcohol and would carefully safeguard their patients lest a temporary use should lead to a fixed habit.

I am, Sirs, yours faithfully,

Nottingham, August 10th, 1905. J. S. BOLTON, M.D. Edin.

SANITATION AT ST. MORITZ.

To the Editors of THE LANCET.

SIRS,—It will be a great kindness on your part if you will allow me through your columns to draw the attention of the local authorities of St. Moritz, Upper Engadine, to the constant complaints we receive from patients whom we send there regarding the sanitation of the locality. My patients complain of the absolute indifference on the part of the authorities to their complaints about the drainage. One cannot understand why the authorities should be so blind to their own interests as not to take most vigorous precautions to make the sanitary arrangements, especially the drainage, as perfect as possible. I have received quite recently a number of letters from patients whom I have hitherto sent to St. Moritz inquiring about other winter quarters, basing their objections to return to St. Moritz upon the faulty drainage and consequent bad smells which they allege to be the cause of the sore-throats so often seen there. It will be much to the advantage of St. Moritz if the local authorities during this autumn will make a thorough investigation and place the whole sanitary arrangements in such a condition as to be above suspicion. After this has been done a report should be sent to the medical press in order to prevent the unfavourable impressions now rapidly spreading regarding this famous health resort.

I am, Sirs, yours faithfully,

Sloane-street, S.W., August 8th, 1905. T. W. PARKINSON.

HIGH-FREQUENCY CURRENTS FOR INSOMNIA.

To the Editors of THE LANCET.

SIRS,—The treatment of sleeplessness and pain has lately been a subject for discussion. I would like to draw the attention of fellow practitioners to the value of the high-frequency currents as an agent for the cure of sleeplessness and the relief of pain. I have now had several years' experience of this form of treatment and am fully convinced of its value. It may be that the high-frequency currents, like other therapeutic departures, have suffered from too enthusiastic testimonies of injudicious friends, but this should not blind us to their true value. I have endeavoured to observe their effects with an impartial mind and have no doubt of their real usefulness in certain conditions. It is an undoubted fact that they do produce an effect on the functions of the nervous system, though it may not be possible to say exactly how this effect is brought about. Quite a common experience is that patients under the influence of the high-frequency currents find themselves relieved of sleeplessness. Electricity in this form will not, of course, meet a more or less sudden emergency where sleep is absent in consequence of acute pain or severe mental distress. In such circumstances one or other of the powerful hypnotic drugs can hardly be avoided. But when there is a habit of persistent insomnia the value of the high-frequency currents is considerable. After a series of applications varying in different cases from 15 to 40, patients almost invariably acquire the habit of sound sleep. There are also other advantages—that the sleep is natural and refreshing and is not followed by any of the ill-effects attached to the use of narcotic drugs. To obtain the best results I find it essential to utilise a large output of electricity, ranging from 400 to 800 milliampères in men and from 250 to 700 milliampères in women. Used under these conditions I venture to say that the high-frequency currents will rarely be employed in vain in cases of insomnia due to mental worry and other allied conditions.

With regard to the use of the high-frequency currents in the relief of pain—here again they can hardly compete with morphine in the promptness with which it overcomes pain due to acute inflammation. Nor are they generally capable of allaying the acute pain of organic disease. But in the treatment of various neuralgias their value is considerable. In neuralgia of the face and forehead and in intercostal, brachial, and sciatic neuralgias I have repeatedly proved their efficacy. The same is true of lumbago and of muscular rheumatism in various parts of the body. In reference to sciatica, it is necessary to remember that when the condition depends upon peri-neuritic adhesions the high-frequency currents render little or no help. It is because this is not invariably recognised that disappointment has sometimes resulted. But with a true neuritis or with a pure neuralgia the high-frequency currents may be confidently counted upon after a few applications to produce permanently beneficial results. In all these instances the method of treatment has the advantage of being grateful and not disagreeable to the patient and in addition it may be stated that the high-frequency currents form one of the best nervine tonics, and therefore while they cure insomnia and relieve pain they

also at the same time greatly improve the general nervous condition of the patient. I have never had experience of any unpleasant or injurious effects resulting from the careful application of the high-frequency currents.

It may be advisable here to remark that the treatment by high frequency currents should be intrusted to qualified medical practitioners only and that it is unwise and irregular for members of our profession in practice to send their patients for any form of electrical treatment to the various unrecognised electrical institutes which are advertised in the lay press.

I am, Sirs, yours faithfully,

Glasgow, August 14th, 1905. W. F. SOMERVILLE, M.D. Glasg.

SECONDARY FACTORS IN THE MORTALITY AND TRANSMISSIBILITY OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—With regard to my preliminary note on Secondary Factors in the Mortality of Pulmonary Tuberculosis, of which you have kindly published a summary in your issue of July 8th, p. 98, I beg to point out that in my last letter I must have left out the words "*per se*" after "pure culture" and "healthy" before "pulmonary tissues" in the wording of the aphorism which you have quoted and which should read: "That the tubercle bacillus in pure culture, *per se*, is incapable of developing in the healthy pulmonary tissues either the anatomical lesions or the clinical symptoms of confirmed pulmonary tuberculosis."

I am, Sirs, yours faithfully,

Havana, July 21st, 1905. CARLOS J. FINLAY.

MISTAKES IN THE DIAGNOSIS OF INFECTIOUS DISEASES.

To the Editors of THE LANCET.

SIRS,—A few years before the last small-pox epidemic I was called to see a man in South Hornsey, North London, suffering from ordinary febrile symptoms, plus a rash, just beginning to appear. The man had been working in St. John's Wood. I diagnosed variola as probable and without waiting for any further development I had the man removed and isolated. The case turned out to be virulent small-pox and owing to my promptness the disease never spread to even a member of the family and was stamped out there and then. I risked the "mistake" and saved the ratepayers a large sum of money. For many years where children are swarming in any house and one is down with some supposed infectious disease, to save lives and to save the ratepayers, it has been my custom to have the patient removed *within a few hours after examination*. I risk the "mistake," and if I am wrong in my opinion once in 15 times—about the average for each of us medical men—the saving to the community after deducting the cost of "mistakes" must be enormous.

Yesterday I was called to see a child, aged five years. Apparently typical scarlet fever. House full of children. Mother informs me, when I tell her I shall have her child removed in a few hours, that the boy has only just come home four days from the fever hospital convalescent from scarlet fever! I nevertheless act with my usual promptness and I risk the "error" again to save both lives and the pockets of the already over-burdened ratepayers. In a few hours the child was once again back in his old hospital.

If medical men, through these grossly unjust remarks about their mistakes, will stand, in future, on their rights and wait till the disease is fully developed and infection has spread, instead of a loss to the ratepayers of £12,000 the reckoning will be nearer £120,000. I calculate that after deducting the cost of my "mistakes" the various parishes that I have to do with have been saved at least £10,000 by

Your humble servant,

Endymion-road, N., August 15th, 1905. SAML. CONSTABLE.

THE SPA TREATMENT OF CIRCULATORY DISORDERS.

To the Editors of THE LANCET.

SIRS,—I have read with great pleasure the long and able article by Dr. Leonard Williams on the Spa Treatment of Circulatory Disorders in THE LANCET of August 5th, p. 347, and whilst agreeing with him in the main points of his arguments I must take exception to his statement that effervescent baths can be equally well applied at home. The natural waters containing bicarbonate of iron, calcium and sodium chlorides, &c., are capable of holding a much larger proportion of carbonic acid gas than those artificial waters where the CO_2 has been dissolved by pressure, as in the natural waters the gas has been under pressure for some considerable time. This can be proved by the fact that a bottle of soda water when opened soon loses its CO_2 under normal atmospheric pressure alone and if heat be subsequently applied very little more gas can be driven off. On the contrary, if a natural gaseous water be exposed to the air the greater proportion of CO_2 can only be driven off by the aid of heat.

I have lately returned from a visit to Spa, Belgium, where there exists an ideal supply of effervescent ferruginous water which is brought to the bath house by a conduit and supplied directly to the various baths and when heated by means of steam the quantity of CO_2 driven off is enormous. Whilst at Spa I was shown over the establishment and purposely picked out indiscriminately four different baths and found the effects identical in all.

Dr. Williams mentions Nauheim as the pioneer with its long 24 hours' journey, truly an undertaking not lightly to be considered by a cardiopath, Royat, Contrexéville, and many others equally far distant, but he has altogether omitted any mention of the town of Spa itself in Belgium, only 11 hours from London and reached by a very comfortable route where the treatment is receiving the greatest attention in a most luxurious establishment fitted with all the latest appliances. The climate, unlike Nauheim, is perfection, with bracing air, and the town, facing south, is particularly well sheltered by surrounding hills where delightful scenery abounds; and lastly, the mental comfort of the patient is catered for by excellent arrangements of concerts, race meetings, and a hundred other amusements.

I am, Sirs, yours faithfully,

Stony Stratford, August 8th, 1905. P. LAKE HOPE.

A POSSIBLE CAUSE OF CHLOROFORM FATALITIES.

To the Editors of THE LANCET.

SIRS,—Some time since, when seeking for tests whereby organo-therapeutic substances might be recognised, I found that some of them had an extraordinary power of decomposing chloroform when in solution, chlorine gas becoming rapidly evolved. In the recently published report of Merck Trillat ascribes a similar property to many organic substances, and it is suggested that as the dangerous body phosgene is formed by the contact of chloroform with the human skin it may also arise from contact with the mucous membranes in certain conditions. It seems probable then that in such circumstances the mucous membrane of the respiratory tract may have the power of decomposing chloroform, and where chlorine gas is liberated a fatal result is not to be wondered at.

I am, Sirs, yours faithfully,

J. C. MCWALTER, F.F.P. & S. Glasg., M.D. Brux.

August 12th, 1905.

MIDGES.

To the Editors of THE LANCET.

SIRS,—At this holiday season I should be grateful if you would allow me some space in your columns to elicit the opinions of your readers about midges and their bites. These small pests seem to be particularly active this year and their bites certainly give rise to an immense amount of œdema and irritation. I have seen people, both men and women, with swellings on their ankles, wrists, and neck just above the collar, varying in size from a hazel-nut to a walnut. Has the nature of the poison injected by these insects ever been worked out? Is there anything which will keep them away short of a thick coating of grease, which is impossible in this land? And can anything be done to lessen the irritation, which in my own case lasts for about a week? I might add that I myself am not particularly susceptible to insect bites. Although I have travelled a good deal in the East, mosquitoes, bugs, and lice never gave me any trouble.

I am, Sirs, yours faithfully,

August 15th, 1905. M.D.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Infantile Mortality in Cheshire.

ACCORDING to the interesting report by Mr. F. Vacher on the health of Cheshire in 1904 there is still scope for much sanitary work. The infantile death-rate in many of the municipal boroughs is far too high, being 24 per 1000 births more than in the 76 great towns in the kingdom, while in the county it was 2 per 1000 births fewer than in the whole country. The highest rate was in Hollingworth urban district where it was 228. Compstall, near Stockport, coming next with 222, while the lowest in the list are the borough of Crewe and Wallasey urban district, each with an infantile death-rate of 159. Speaking generally, it appears that it is highest in the manufacturing districts where the mothers often work in the factories very nearly up to the time of their confinements and where they are at work again too soon afterwards. This, however, is not the only factor. In Macclesfield, where the rate is 178, the local medical officer of health finds that the mortality increases in the warm weather from conditions favouring the growth of micro-organisms which cause putrefaction in the food of the infants. Following the example of Manchester there is at Macclesfield a Ladies' Public Health Society for which he asks support. The functions of the society are to visit the house where a baby is born, to take an interest in the child's welfare, and to direct the mother as to the care, feeding, and management of the infant, and as to the necessity for cleanly surroundings. Much may be done by kindly and sympathetic tact on the part of the would-be instructors of their poorer sisters who, as a rule, are not wanting in a certain independence and often, indeed, are imbued with a delicacy of feeling little suspected by their visitors. The medical officer of the Northwich urban district does not think the high death-rate of the towns is due to ignorance as its main cause, for it is lower in rural districts though, as a rule, he considers townfolk better educated and with greater facilities for getting help and advice. He points to the keener struggle for existence in the towns and to the fact that town infants are often ill provided with fresh air and sunlight because rents are cheapest in the more crowded courts and alleys. He says also that "soothing syrup and mothers' friend" are more used in the town than in the country. "An infant is more in the way and more costly in town than in the country, and unless some relaxation be made as regards taxation in favour of the man with a family, children will be less cared for." Perhaps some of our politicians in want of a new cry will exploit this idea. Drink and the poor milk-supply contribute their share. Mr. Vacher says that the medical officers of health consider that more prominence should be given in the elementary schools to the teaching of personal and domestic hygiene. This might no doubt be done and it would benefit the coming generations, even if in order to find time for it the curriculum were to lose some of its useless and merely decorative redundancies. The main causes of a high infantile death-rate are summed up as: (1) the employment in factories of those about to become mothers and of those recently confined who should be nourishing their infants; (2) the infants of mothers employed in factories being badly cared for and ill fed while the mothers are at work; (3) the environment being insanitary from the storing of garbage and filth close to the house and the absence of proper paving of yards leading to soil pollution; (4) there being no provision for isolating infectious children or disinfecting bedding, &c.; and (5) the ignorance common among working women as to the feeding, clothing, and management of infants.

House-flies and Diarrhœa.

Dr. J. Niven, the medical officer of health, has given to the sanitary committee a statement of the conclusions arrived at in 1904 as the result of his inquiries into a number of cases of fatal diarrhœa in infants. Under 4 per cent. of these cases had been fed at the breast. The lesson given is therefore that mothers should not wean their babies in the warm months but in order to suckle them they should feed adequately, for "it is cheaper as well as better to spend additional money in feeding the mother than in feeding the infant." Over one-third of the cases specially investigated in 1905 are believed to be due to direct infection from those suffering from diarrhœa or having charge of children suffering from it, therefore no person having diarrhœa should take charge of, or be in the same room with, an infant. There is reason to believe that the great increase of fatal diarrhœa in summer and autumn is due to its spread by house-flies, so that the utmost care should be taken to guard all food, especially that of infants, from their visits. All food therefore, milk, bread, sugar, syrup, or treacle, should be carefully covered or kept in a safe. Dr. Niven very properly objects to the gums of infants being rubbed with the finger, often a dirty finger, with the idea of easing the gums, for there is reason to believe that diarrhœa is often communicated in this way. On the other hand, the mouth may be usefully swabbed out with a little clean lint dipped in a solution of boric acid after each meal. He objects also to the "dummy teat" which is liable to contamination from dropping on the floor. He also advises that yards should be kept clean and the drains flushed daily, that ash-tubs should not overflow, and that vegetable refuse should not be put into them. All such refuse as tea leaves, cabbage leaves, potato peelings, &c., should be burned in the kitchen fire. Any offensive smell the cause of which cannot be ascertained and removed should be reported at the sanitary office. The poor of Manchester can obtain diarrhœa mixture free of charge at the several police and fire stations. As would be expected, diarrhœa is rapidly increasing at present and it is to be hoped that Dr. Niven's words of good counsel will become widely known and acted on. The war against mosquitoes which seemed so utopian until recently is already bearing good fruit and in like manner we may have to wage deadly war not only against the house-fly but against many others. Should this ever be carried out successfully it will be interesting, and perhaps important, to learn what effect it has on the "balance of nature." Just now Trafford-park is suffering from a plague of small black flies which a few days ago were said to hang over it like a pall and to be a source of much annoyance to the people.

Children's Hospital.

The residuary legatees under the will of the late Mr. Godfrey Ermen have made a donation of £12,000 to the Children's Hospital. It is to be applied to providing a new dispensary and out-patients' department and will, it is believed, substantially cover the cost, leaving the funds contributed by various helpers available for the other objects of the appeal. The maintenance of the new dispensary will necessarily be more costly than that of the old one, so that further donations to the fund are desired. The name of Mr. Godfrey Ermen is to be associated with the new building.

Small-pox in Cheshire.

The papers record a case of small-pox in this place or that but it is not till these various outbreaks are collected together and counted up that the prevalence of the disease is brought home to the mind. In 1904 outbreaks occurred in all the municipal boroughs of Cheshire but Crewe, in 15 of the 36 other urban districts, and in five of the 12 rural districts. Macclesfield reported the highest number—49 cases. Hyde came very near with 46 and Dukinfield had 36 cases. An important part in spreading the disease was, in Cheshire as elsewhere, taken by tramps and common lodging-houses. Mr. Vacher speaks strongly on this danger to the community. The public-houses, too, especially in poor neighbourhoods, frequented by travelling tinkers, knife-grinders, and pedlars, are, by harbouring such people, to some extent instruments for spreading the disease. So, also, the mild cases, not seen by a medical man and not notified, are a source of danger, and likewise those cases which not infrequently have been thought to be chicken-pox. The picking and sorting of waste rags are occasionally responsible (as at Bollington) for conveying infection. In our eminently unpractical country it seems almost hopeless to look for the good of the majority to be considered if it involves any apparent lack of tenderness to the views of faddists and cranks. Otherwise we should by means of vaccination and revaccination be as free from small-pox as is the German army.

When the Electricity Supply System is a "Nuisance."

Some time ago the electricity committee of the corporation was mortified at the result of an action brought against the corporation in the King's Bench Division when its system of electric supply was pronounced to be "itself a nuisance." Now the Court of Appeal says that the verdict went too far, that the rights to break open the streets, to lay and to maintain electric cables, and to

convey and to store the electric energy therein, were authorised and protected by the statutory powers of the corporation and it was only when the electric current was allowed to leak and to do damage that a nuisance was set up which was not protected; that what happened in this case, where considerable damage was done to a warehouse, constituted a nuisance for which the corporation was responsible and that there was sufficient evidence of negligence on the part of the corporation or its servants to justify the judge in the King's Bench Division in leaving the question of negligence for the consideration of the jury. In this action substantial damages were given to the plaintiffs. It is said that the committee is not likely to proceed further in the matter. After all, there is some comfort in the thought that if the corporation, with the aid of its "electric supply system," blows up a house or warehouse, with or without injury to those on the premises, the "system" may be called a "nuisance" and may be proceeded against with some chance of success.

Isolation Hospital for Preston.

On August 10th the foundation-stone of a new isolation hospital at Preston was laid by Dr. Brown, chairman of the health committee. It is expected to cost £20,000, and is to be provided with two pavilions for scarlet fever patients, one for diphtheria and one for typhoid fever. There are to be 56 beds, or about one for every 2000 inhabitants.

August 15th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Observations of the Medical Officer of Health of Liverpool upon the Report of Dr. R. J. Reece to the Local Government Board on Small-pox and Small-pox Hospitals at Liverpool, 1902-03.

THE port sanitary and hospitals committee of the Liverpool corporation on March 30th, 1905, had under consideration the report of Dr. R. J. Reece to the Local Government Board on small-pox and small-pox hospitals at Liverpool, 1902-03, and passed the following resolution:—

That the medical officer be requested to furnish the committee with his observations upon the report.

In pursuance of that resolution Dr. E. W. Hope submitted some observations, a summary of which is appended. Dr. Hope said that the investigations made by Dr. Reece extended over nearly 13 months—namely, from March, 1904, to February, 1905, and he devoted the closest personal attention to those aspects of the outbreak respecting which the Local Government Board desired information and which may be presumed to be those dealt with in the report. After mentioning the area of the city—viz., 23 square miles, with a population of 723,430—an acknowledgment is made of the cordial coöperation and assistance given locally in the course of the investigations. Dr. Hope arranged that every book and every record should be placed at Dr. Reece's disposal, also that every member of the staff whom he desired to interview should be available for the purpose. After these preliminaries Dr. Reece's report proceeds to deal with three important matters connected with the outbreak—viz., (1) the administrative arrangements available for dealing with importations of small-pox into the city and for preventing and limiting its spread; (2) the administration of the hospitals; and (3) the influence exerted by the hospitals themselves in the diffusion of small-pox by what has been called "aerial convection." Dr. Reece mentions that Liverpool as a great seaport town has been especially prone to receive small-pox and regarding the action of the health committee in combating the disease and in promoting vaccination and revaccination he speaks in terms of praise. Want of practical experience of the sanitary administration of cities, Dr. Hope says, has led Dr. Reece to make observations which convey a wrong impression. His complaint on p. 4 of his report that no list had been kept of "contacts" placed under observation suggests a laxity which did not occur. The addresses not only of "contacts" but of all out-workers, with all the names necessary, were carefully kept and each officer engaged in visiting them had been duly recorded, together with his visit in his work books. Dr. Hope gives a facsimile of the record sheets in Appendix B of his observations. These sheets were at Dr. Reece's disposal. On p. 7 of his report Dr. Reece complains that the names of patients are not recorded in a particular book, a book, it may be observed, which was not intended for their record. But there were placed in his hands volumes in which the name, age, address, and date of every patient are recorded, one of them being a volume especially kept for that purpose and the other being a book recording the admission of patients to hospital. It is not apparent therefore why a complaint of this character is made. Dr. Reece complains on p. 10 of his report that spot maps of disease were not made systematically in the health department. It is not quite clear in Dr. Hope's mind what he means by this, whether or not it is inferred that spot maps of disease are made in other places but not in Liverpool. His remark appears to Dr. Hope to arise from a misapprehension of the objects aimed at by medical officers of health in preparing spot maps. They are only prepared when some useful purpose would be served by their preparation and when such maps are necessary to explain or to simplify reports which might otherwise be obscure. Dr. Reece criticises the methods in which the hospital registers and books were kept and suggests that they may be due to the want of previous experience and the short stay of the resident medical officers at the hospitals. Dr. Reece says: "In this report the city hospitals receiving small-pox cases are alone dealt with, but it is manifest that the scheme of supervision of the whole of the city hospitals merits the attention of the hospitals committee of the corporation." This observation, suggesting negligence on the part of the hospitals committee, Dr. Hope says is too general to admit of comment. Dr. Reece, he says, does not appear to have visited these institutions or to have taken steps to acquaint himself with the method of their supervision. Dr. Reece also observes on p. 6 of his report that the medical officer of health has no direct administrative control over the various city hospitals, to which Dr. Hope replies that no one with practical knowledge of the sanitary administration of large cities like Liverpool would suggest that the medical officer could possibly exercise direct administrative control over the city hospitals. In smaller districts it can take place with advantage but in the large cities it would be impracticable. Dr. Hope devotes a large part of his "observations" in questioning Dr. Reece's remarks on the alleged influence of the small-pox hospitals in disseminating the disease, otherwise known as the theory of aerial convection, and says that if Dr. Reece's assertions are well founded the hospital for small-pox erected upon a site carefully selected for the purpose and approved by the Local Government Board, after full and complete inquiries by the Board's experienced inspectors, must be closed as a public danger. Dr. Hope challenges Dr. Reece's findings and questions the statements and diagrams by which the theory of aerial convection was supported with reference to the small-pox hospitals of the city. One of Dr. Hope's strongest arguments against this theory lies in the fact that the invasion by small-pox of houses near to the Fazakerley hospital was least when the hospital had most patients. Dr. Hope also emphasises the fact that no hospital had so many surrounding cases of small-pox as one which itself never received a small-pox patient. In reference to Dr. Reece's remarks on p. 9 of his report, stating that "the generally accepted and, so far as I am aware, the only completely satisfactory explanation of the peculiarities of small-pox incidence around hospitals receiving acute cases of the disease is dissemination of infection by aerial convection," Dr. Hope replies that "it must at once be pointed out that the statement that the theory is generally accepted is without justification. The theory is not generally accepted by experts; it is not generally accepted by medical officers of health, and it has been rejected by the High Courts of Justice both in Ireland and England when the theory had been put forward to restrain the use of certain sites for small-pox hospitals." Dr. Hope concludes his "observations" by saying that "neither the Local Government Board nor the port sanitary and hospitals committee could assent to the continued use of the Fazakerley hospital if the allegations contained in Dr. Reece's table are to be regarded seriously." "The committee will, of course, appreciate that Dr. Reece's report derives its importance from the official position which he holds, and although it does not appear that the Local Government Board have adopted the report, or have given official acceptance to it, yet no doubt must be allowed to remain as to the views of the Board and the views of the committee in the matter."

August 15th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Hospital Treatment of Mental Affections.

Mr. John Carswell, who is certifying medical officer in lunacy cases for the Glasgow parish council, has been pointing out that with respect to applications made to the inspector of poor on behalf of persons supposed to be insane a sorting-out process is necessary in the interests both of the public and of the patients. This can only be done by two methods: first, by a careful medical examination of each case; and, secondly, by provision of a special hospital for the care of the early and transient mental cases. There must necessarily be a considerable proportion of cases presenting mental symptoms which do not require asylum care. He strongly objects to the term "observation wards" as applied to mental hospitals. It leads to the idea that patients are sent there for the purpose of diagnosis, which is not the case. The diagnosis has to be made, if possible, before the patient arrives there. In the Glasgow Hospital the period of residence is limited to six weeks, at the end of which time the patient must be discharged or be certified for the asylum, boarded out, or otherwise disposed of under the lunacy statutes. The patient has perfect freedom of action and there is no power of detention. The hospital is in the midst of a busy district but that causes no difficulty as regards the efficient care and medical treatment of the patients and a certain amount of open-air exercise can be secured. Moreover, the wards are well ventilated and have abundance of light. The average period of residence is about four weeks. Out of 1027 cases reported to the inspector of poor as lunatics 449 were certified insane and were removed directly to the asylum. Of those treated in the mental hospital there were afterwards certified insane and removed to an asylum 134. There were treated in the hospital in addition to those enumerated as having been transferred to the asylum 336. Of these, 213 were discharged recovered, 95 were discharged relieved—i.e., sufficiently well to be sent home or so far recovered from the mental condition as to be cared for in the ordinary wards of a hospital—and 30 had died. There were otherwise disposed of as not certifiable, treated at home, &c., 76. The general result is that of 1027 cases 583 were removed to asylums and 414 were disposed of without recourse to asylum care. The figures seem to justify the general proposition that in a population such as that of Glasgow there is a considerable number of patients who are suitable for treatment in a mental hospital and who could therefore be spared the stigma of being sent to an asylum.

Munificent Gift to Glasgow.

Glasgow has profited much by the gifts of many of her public-spirited citizens and the last possession which she has acquired in that way is by no means her least valuable one. Mr. A. Cameron Corbett, M.P., has notified the Lord Provost that he has agreed to purchase a part of Ardkingloss estate with a view to handing it over to the corporation of Glasgow. The extent of the land in question is 9000 acres and the estate is most exquisitely situated between Loch Long and Loch Goil. As Mr. Corbett says in his letter, his object is "to preserve a grand and rugged region for the best use of those who love the freedom of the mountains and wild natural beauty." In the deed of conveyance a clause is inserted prohibiting the sale of alcoholic liquor and Mr. Corbett suggests that nothing should be done which would mar the naturalness of such scenery. Such a gift is unique and it seems almost unnecessary to descant upon the generosity which prompted it. The corporation has not yet seriously approached the problem of what to do with its new estate but the suggestions put forward by correspondents in the newspapers are legion. Glasgow has hitherto done well in its efforts to provide facilities for those of its citizens who suffer from pulmonary tuberculosis. The work carried on at Bellefield Sanatorium has been largely successful but unfortunately the accommodation there is limited and many patients suitable for treatment are constantly waiting for admission. That this should be so is distinctly unfortunate in the case of a disease in which it is recognised that to obtain the most successful results treatment should be commenced as soon as the disease makes itself manifest. It has been suggested for some time that it would be an advantage to establish a subsidiary sanatorium in the form of a consumptive camp, but one of the difficulties has been to secure a suitable site for such an enterprise. Surely in this large tract of land so generously placed in the hands of the corporation a nook will be found suitable for the establishment of such an institution in a situation where its presence will not interfere with any other plans which may be carried out in order to enable the citizens to take the best advantage of their new possession.

"Tuberculosis and a Simple Life": Lecture by Sir James Grant.

Sir James Grant, M.D., ex-President of the Canadian Association for the Prevention of Tuberculosis, delivered a very interesting lecture in the Young Men's Christian Association Hall, Aberdeen, on August 10th on Tuberculosis and a Simple Life. Dr. J. C. Ogilvie Will presided over a large attendance. Sir James Grant said he was not there as a foreigner but as a Scotchman born and educated in that country. He had merely come from Canada, endorsed by Lord Strathcona, to offer a few observations upon tuberculosis and a simple life, to compare notes with the leading authorities in this country, and to see what could be accomplished by exchange of ideas on those points. After referring to the work of the Canadian Association for the Prevention of Tuberculosis, he said that in mastering or controlling this disease it was absolutely necessary that there should be thorough organisation. Three specific objects were: first, educational; second, preventive; and third, curative. In an educational way a great work was being done by lectures. Then the dissemination of literature was giving people information. With regard to preventive measures, a by-law had been recently passed in Ottawa making it an act for which an individual would be punished—in fact he might be put in prison—if found expectorating in the streets, or on the railways, or in the churches. As regarded curative measures, he said if there was any subject that concerned the welfare of the community it was this matter of the treatment of tuberculosis. They knew perfectly well that sanatoriums were being discussed and erected almost all over the world at the present time. He did not approve of large sanatoriums. Was it to be supposed for one moment that a large number of people huddled together had the same prospect of recovery as by the modern treatment which was going on to-day in the tent and the home? If anyone in the country developed this disease all he had to do was to put up a small tent, fit it up with a bed, a stove, and culinary apparatus, and get the fresh air and modern attention. The house where a consumptive case had been ought to be purified thoroughly and when there was a consumptive patient in the house the health authorities should be notified. He thought a proprietor should be fined if he allowed a second inmate into a house where a consumptive had resided until it was purified thoroughly. The reason why so many took the disease was that their vitality was lowered. If the simpler life was not followed there was danger of a lowered vitality and there would be promoted very readily that condition of the system which would enable the bacillus to settle down and generate tuberculosis. He believed that all schools should be examined by medical experts. The whole question of the treatment of this disease required to be taken into serious consideration by the authorities. Dealing with the question of food and alcohol, he said as regarded food that there was no substance in the whole list of articles of diet that could surpass oatmeal. With reference to the drink problem he was pleased to know that at the present time a marvellous change had been coming over the minds of the people of the world in regard to this extremely important subject. The subject had been carefully, solidly, and substantially investigated. Every day it was growing more popular not to use alcoholic liquors. The lecturer then referred to an interesting visit which he paid to Balmoral and said that he had been thoroughly impressed with the remarkable evidence in all the surroundings of Balmoral of a simple life that contributed in no small degree to lengthen the years which enabled Her Majesty the late Queen Victoria, as woman and sovereign, to influence for good all movements of her time, as if by a unique magnetic power, transmitted to all parts of her empire, throughout which "she made herself understood, beloved, and revered." Dr. Ogilvie Will moved a vote of thanks to Sir James Grant for his excellent address. The subject was one of extreme interest to everyone, to the highest as well as to the lowest in the land. King Edward himself had initiated a home for the treatment of consumption. A great deal had been said as to the establishment of homes for the treatment of tuberculosis amongst

the working people. He had always had his doubts as to the expediency of this being carried out on account of the great expense and the impossibility of treating any large number. He did not think that it had been yet proved that sanatorium treatment was the best possible method and he was not sure that Sir James Grant was not advocating the right thing when he suggested treatment of a simple character. He had had reason to raise his voice against that disgusting habit of spitting which went on so largely in Aberdeen. One point was known as the "spitting corner"—beside the Queen's statue—where the loafers seemed to have nothing else to do but to amuse themselves by expectorating. He was glad to see that in the tramway cars there were notices requesting people not to indulge in this filthy habit. He was sorry to say, however, that the rule was not always observed and when on several occasions he found fault with people they seemed to think that he was taking a great liberty indeed.

August 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Death of Mr. John Auterson, L.R.C.P. Edin.

AT an inquest held on August 8th in Cookstown in reference to the sad death by accident of Mr. John Auterson, who had for many years been a practitioner in that town, evidence was given as to the unprotected condition of the road over which he with his vehicle and horse were projected 15 feet. One witness said that the road was unprotected for a long distance in both county Tyrone and in county Derry and was very dangerous. Several accidents have occurred in a similar way on the road, some of them, as a witness testified, resulting fatally. Mr. R. Burgess, J.P., who attended the deceased, said that the road was a disgrace to modern civilisation. The jury returned a verdict in accordance with the medical evidence (shock to the sympathetic system followed by peritonitis), adding a rider in which they drew attention to the dangerous state of this road which is the leading highway from Coagh to Cookstown and on which there is great traffic. The coroner is sending copies of the verdict and rider to the county officials of Derry and Tyrone and to the rural and county councillors concerned. The coroner, the medical witness, and the jury having expressed their sincere sympathy with the friends of the late Mr. Auterson, a brother-in-law of the deceased feelingly replied.

Typhus Fever in Donegal.

An alarming outbreak of typhus fever has occurred in Innishowen, a district of co. Donegal. It is believed that the contagion was brought into the country in second-hand clothes, packed in Glasgow and sold at local fairs. Nine families in Effeshmore, a mountainous district in Clonmany parish, have been attacked and already there has been one death. Dr. B. MacCarthy (medical inspector of the Local Government Board) and the district medical officers are making every effort to stamp out the epidemic. The "contacts" have all been isolated.

A Medical Officer's Holiday.

A curious situation has arisen in Lurgan. It appears that Mr. Hugh Reid, dispensary medical officer of Lurgan No. 2 district, had been granted by the guardians a month's leave of absence on the condition that his substitute would accept 3 guineas weekly, but as he has been unable to find any local locum-tenent who will act at this figure, the chairman announced that if Mr. Reid could find no medical man to act for him at 3 guineas per week he must do without his holiday.

Smiley Cottage Hospital, Larne.

At the second annual meeting of the trustees and consultative committee of this hospital held in Larne on August 11th it was reported that 54 in-patients (and a few out-patients) had been treated. Of the interne cases 30 were medical and 24 were surgical; there were 15 operations. Admirable work is being done in this most useful institution for which the people of Larne and neighbourhood have to thank Sir Hugh Smiley and his generous wife.

Royal Victoria Hospital, Belfast.

Through the kindness of the board of management of the Royal Victoria Hospital the superintendents of the Hospital Saturday collection were entertained on August 12th and were given an opportunity of inspecting the hospital and its working which was much appreciated by the numerous guests who were very hospitably treated.

Belfast District Lunatic Asylum.

At a meeting of the asylum committee held on August 14th it was reported that there were at present on the asylum register a total of 1108 inmates—504 males and 604 females. During the five years ending December, 1904, there were 509 cases received into the asylum from the workhouse and so far this year there had been 53 admissions. Some improved provision will have to be made for the idiots and imbeciles, as neither the workhouse nor the asylum is the proper place for such cases.

August 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Relations between Albuminuria and Diabetes.

AT a meeting of the Academy of Medicine held on July 25th M. Lancereaux said that in his opinion it was an error to suppose that the passage of sugar through the kidney was the cause of the albuminuria which was found in diabetes, because albuminuria was unusual in pancreatic diabetes in which the amount of sugar varied between 500 and 1100 grammes in 24 hours, whereas it was relatively frequent in fatty or arthritic diabetes in which the amount of sugar seldom exceeded 100 grammes. There were three pathogenic conditions which might give rise to albuminuria in diabetes. One was an intercurrent disease, especially tuberculosis. The urine was in that case high-coloured, turbid, and scanty; its specific gravity was increased and it was loaded with flocculent albumin and tube casts; the kidney lesion was epithelial nephritis, quite independent of the diabetes and connected with the general disease. The second of the three conditions above mentioned was arterio-sclerosis with consecutive atrophy of the kidneys. The urine was of low specific gravity, transparent, pale, and abundant; the albuminous precipitate was small in quantity; the kidney lesion was arterial nephritis, which, as well as the diabetes, was of arthritic origin; uræmia was of frequent occurrence. In the last of the three conditions there was neither any intercurrent disease nor arterio-sclerosis. The urine was almost normal in quantity, specific gravity, and colour, and it contained neither tube casts nor leucocytes; the albuminuria was generally abundant and was increased by mental excitement and overwork, but the patient's general health was fairly good and anæmia was rare. This third form deserved to be called albuminous diabetes on account of its constant association with glycosuria, and in accordance with the celebrated experiment of Claude Bernard it ought to be attributed to a disorder of the bulbar innervation.

Præcordial Massage in Heart Disease.

At the same meeting of the Academy of Medicine M. Cautru read an interesting paper on the Utility of Massage of the Cardiac Region in Heart Disease. Such massage had a decided effect on the arterial tension, on the pulse, and on the cardiac dulness. In exaggerated tension he used massage to reduce it and in low tension he used massage to increase it; massage was, in fact, capable of regulating arterial tension. The desired result was generally obtained in from five to ten minutes and at first it lasted for several hours but after successive applications of the treatment, varying from ten to 20 repetitions, the effect became permanent. The particular kind of massage to be used was determined by the blood pressure. In patients with diminished blood pressure and quick pulse massage reduced the frequency of the pulse and increased its amplitude, as was shown by sphygmograph tracings. Furthermore, under the influence of massage the area of cardiac dulness was notably diminished—both the absolute dulness corresponding to the portion of the heart which was in contact with the thoracic wall and the relative dulness due to the interposition of the margin of the lungs. When, however, the pericardium was adherent the absolute dulness remained invariable, a sign which might be useful in the diagnosis of such cases.

Operations for Cancer of the Stomach.

At the same meeting of the Academy of Medicine

M. Poncet read a paper on the Treatment of Cancer of the Stomach by pylorectomy combined with more or less extensive gastrectomy. He said that of 12 such operations six had been successful and he concluded that this operation was in every way preferable to gastro-enterostomy, the latter being at the most only palliative. In conclusion, M. Poncet remarked on the necessity for operating at an early stage of the disease and on the advantages of exploratory laparotomy in doubtful cases.

The Treatment of Phlebitis.

At a meeting of the Société de l'Internat des Hôpitaux de Paris, held on July 27th, M. Vaquez expressed disapproval of the old-fashioned views which encouraged prolonged immobilisation of limbs affected with phlebitis. He recommended movement of such limbs at a period which varied according as the phlebitis belonged to one or the other of its two varieties. In phlegmasia alba dolens and phlebitis obliterans of the large veins he deprecated the use of splints (*gouttières*) which increased the pain and he recommended immobilisation in cotton-wool (*pansement ouaté*), the leg being held in position by tapes fixed to the mattress; he further recommended the use of a bedstead with adjustable fittings and acknowledged that no precise time could be assigned for the duration of the immobilisation, although in the absence of fever about three weeks might be sufficient for the establishment of œdema and pain in the course of the vein, symptoms which were indispensable preliminaries to mobilisation. The second variety of phlebitis, or subacute venous septicæmia, arose in ordinary varicose veins as a result either of a blow or of local infection from an abrasion of the skin. M. Vaquez said that the infection did not always remain localised and might spread extensively along the veins. The preventive treatment consisted in massage, gymnastic exercises, support by means of stockings, and avoidance of mechanical injuries such as blows or wounds of the skin. If subacute septicæmia declared itself complete immobility ought to be maintained for about three weeks, followed by massage not of the phlebitis but of the immobilised joints and of the muscles which were atrophied by disuse. M. Vaquez said that septic phlebitis even when occurring at a low level always required high removal of the veins. He also recommended hydrotherapeutic measures.

Anæsthesia produced by the Combined Use of Scopolamine-Morphine and Chloroform.

M. Walther has recently advocated the production of anæsthesia by the combined action of scopolamine-morphine and chloroform and M. Monod has employed the method in five cases. In four of these the result was quite satisfactory but not so with the fifth patient who was a female. The injection of scopolamine-morphine having been given, chloroform was administered two hours afterwards and M. Monod performed cholecystostomy; 20 minutes after the chloroform was discontinued she was seized with syncope and artificial respiration had to be maintained for more than half an hour. Injections of ether and caffeine were also given. After 20 minutes of apparent death the pulse reappeared and she soon regained consciousness. M. Monod did not think that the mishap could be attributed to the morphine because the patient had already received injections of morphine without any abnormal manifestation. He described the case at a meeting of the Surgical Society held on July 26th.

Surgical Treatment of Facial Neuralgia.

At a meeting of the Surgical Society held on July 27th M. Delbet described three cases in which operations had been performed for the relief of facial neuralgia. In one of the patients he first resected the supra-orbital and infra-orbital nerves but as the neuralgia continued he removed the Gasserian ganglion and the patient remained well for eight months, after which the pain returned. In August, 1902, M. Delbet resected the superior cervical ganglion of the sympathetic. For the first 12 days there was no definite result but afterwards there was an improvement, although not such as to render further treatment unnecessary and the patient was at the present time receiving radiotherapy from M. Béclère. In the two other cases also treated by the same method there was a similar improvement but not complete recovery. Considering that resection of the supra-orbital and infra-orbital nerves was ineffectual while the removal of the Gasserian ganglion was a serious operation and often untrustworthy, M. Delbet concluded that excision of the sympathetic ganglion was preferable because it sometimes yielded successful results.

Paris Milk-supply.

A paper on the Paris milk-supply read by Dr. Henri de Rothschild at a recent meeting of the Société Scientifique d'Hygiène Alimentaire ought to attract the attention of the public authorities. From his observations and analyses of the milk sold in the 20 districts (*arrondissements*) into which the city is divided it appeared that only 22 per cent. of the samples contained a normal amount of fat, the remainder being impoverished. The proportion of inferior quality was 91 per cent. for the milk retailed at 20 centimes per litre (2½*d.* a quart) and 75 per cent. for the milk retailed at 26 or 30 centimes per litre (3½*d.* a quart).

Chloride-free Diet in Heart Disease.

At a meeting of the Société Médicale des Hôpitaux held on July 28th M. Vaquez and M. Digne described observations which they had made on the effects of limiting as much as possible the chlorides in the diet of patients suffering from heart disease. They have obtained proofs, on the one hand, that there was a constant retention of chlorides during the continuance of well-marked cardiac symptoms; and, on the other hand, that the minor phenomena, such as nocturnal dyspnœa, transient œdema, and œdematous bronchitis, which preceded urgent cardiac symptoms have a similar origin. Conversely, these cardiac symptoms, whether slight or severe, did not pass off without copious excretion of urinary chlorides (*polyurie chlorurique*). Mere rest in bed with the use of a chloride-free diet would sometimes be sufficient to bring about recovery. A chloride-free diet also assisted the action of diuretics in such cases. In mitral and aortic disease with low arterial tension a chloride-free diet and preparations of digitalis were essential, followed by a prolonged use of theobromine. In mitral and aortic disease with hypertension, conditions which were usually accompanied by renal sclerosis, the most trustworthy treatment consisted in the use of theobromine together with the administration of small doses of digitalis at definite intervals. The "dechloruration" necessary during treatment by digitalis must sometimes be replaced by "hypochloruration" (*régime hypochloruré*). In heart disease a dietary containing very little chloride was in every way desirable, even when the patient felt comparatively well. On the slightest appearance of cardiac symptoms it was necessary as a precaution to prescribe digitalis combined with "dechloruration" lasting for three four days, followed for a week by the administration of one and a half or two grammes of theobromine and a dietary containing very little chloride. When the symptoms were urgent the use of chlorides ought to be regulated in accordance with the results of investigations as to the capacity of the organism for chlorides. Systematic experiments and analyses, combined with a dietary of uniform hydrating and calorific power (*alimentation isohydrique et isothermique*) as described by M. Widal and daily weighing of the patient, would show how much chloride could be taken without danger.

Involuntary Movements of the Fingers in Tabes Dorsalis.

At the fifteenth congress of French-speaking alienists and neurologists held at Rennes from August 1st to 7th M. Sabrazès said that in tabes dorsalis it was not unusual for the fingers to make involuntary movements of adduction, abduction, opposition, and rubbing against one another. This often happened with the forefinger and thumb, which might work like a pair of forceps, especially when the person was speaking. Investigation of the early history of this condition showed that it was preceded by an affection of the hands characterised by awkwardness and loss of sensibility; there was also in the fingers a feeling of numbness which caused the patient to rub them against one another for the purpose of restoring sensibility, thereby manifesting a sort of motor reaction against the feeling of numbness. In other cases these movements corresponded to those executed by the patients in the course of their occupation, such as the manipulation of cloth by a tailoress or the winding of tow on a reel. These involuntary movements were annoying to the patients who endeavoured to disguise them in various ways. Since the attention of M. Sabrazès had been directed to the subject he had observed five cases and had compared the movements with those occurring in tic. Their frequency in tabes dorsalis was of some importance as a symptom.

The Treatment of Incontinence of Urine.

At the Congress of the French Association for the

Advancement of Science, which was held from August 3rd to 10th, M. Ardouin said that he had used Sicard's method of epidural injections in the treatment of 22 cases of incontinence of urine arising from various causes. He adopted Cathelin's procedure of injecting artificial physiological serum in doses varying from 10 to 30 cubic centimetres. He has never observed untoward results, even of a trivial kind. During the injection some patients experienced sensations of pain or weakness in the legs, the back, or even the nape of the neck. The results were very encouraging, as 16 patients recovered and four were improved, while the remaining two showed no change.

August 14th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Heart Disease and Cycling.

As already reported in these columns,[1] the military authorities have found that there is a considerable increase of cardiac diseases in the army as well as among the conscripts. A special commission appointed to inquire into the matter came to the conclusion that various excesses in which young men indulge, together with the prevalence of influenza, may have contributed to the spread of cardiac troubles. Dr Beyer, a military surgeon, writing to the *Münchener Medicinische Wochenschrift*, has expressed the opinion that a connexion exists between heart disease and cycling. He has examined the conscripts of two army corps, of whom 233 and 293 proved to be suffering from heart diseases. 41 and 110, being respectively 17·6 and 37·5 per cent., of the sufferers were stated to be cyclists and it is remarkable that the cardiac troubles which are most commonly found in cyclists—namely, dilatation and cardiac irritability—were especially frequent among the conscripts. It seemed to be proved that cyclists, especially those following sedentary occupations, such as clerks, school teachers, shopmen, &c., were liable to heart disease, because they cycled long distances on Sundays without having sufficient practice during the rest of the week. Another class consisted of working men who in the evening cycled home from their employment after a day spent in fatiguing exertion. All these people overstrained their hearts by cycling. Cases where soldiers contracted heart disease by cycling in the service were rather rare, because the men selected for that duty were all of strong constitution, were previously examined by an army medical officer, and were kept in regular practice.

The German National Beverage.

Temperance principles are obviously making substantial progress even in quarters where it might be least expected. According to recently published statistics the consumption of beer is steadily decreasing in the city of Munich so justly famous throughout the world for the produce of its breweries. The natives of Munich not long ago neither liked nor recognised any other drink than beer and even children became accustomed to the national beverage at an early age. The result was that fatty heart, arterio-sclerosis, cardiac dilatation, and other diseases of the circulation were "endemic" there, so that the late Professor Oertel of Munich had ample material for his well-known studies on cardiac debility and its treatment. In 1884 the average consumption of beer in Munich was not less than 500 litres per head per annum, but this estimate has decreased to 339 litres in 1903 and 315 litres in 1904. In 1904 the output of the Munich breweries was 3,185,800 hectolitres, of which 1,648,510 were consumed in Munich; in 1903 the output was 3,290,900 hectolitres, of which 1,745,495 were consumed in Munich. The water supplied to the town is of good quality but the average citizen would be astonished at the suggestion that people might drink it habitually. This marvel may, however, come to pass if the consumption of beer continues to fall off at the present rate.

Arhovin.

Arhovin, which is a combination of diphenylamin with thymolic-benzoic acid, has been recently recommended as a specific remedy against gonorrhœa, and Dr. Piorkowski has published in the *Deutsche Medicinische Wochenschrift* the results of researches on the bacteriological relations of the new substance. He states that it has an aromatic smell and an agreeable taste. It is not soluble in water but is soluble in alcohol, ether, and chloroform. It is absorbed by the stomach in from 15 to 20 minutes. Its strong bactericidal action is proved by the destruction of cultures of bacteria. Cultures of staphylococcus and bacterium coli are destroyed within 60 minutes. The destruction of cultures of the gonococcus was even more prompt, these micro-organisms ceasing to grow after a contact of 15 minutes' duration with arhovin. Dr. Piorkowski concludes from his experiments that the substance is likely to be useful both by local administration in gonorrhœa, urethritis, endometritis, and otitis, and also by internal administration in diseases of the urogenital organs, especially in cystitis and pyelitis.

Operative Treatment of Puerperal Septicæmia.

Professor Bumm recently read a paper before the Berlin Medical Society on the Operative Treatment of Puerperal Septicæmia. He said that the results of surgical interference were far from being satisfactory. Neither the use of the curette nor the removal of the uterus was trustworthy, the latter procedure leading to profuse hæmorrhage and moreover leaving the infected stump behind. The same danger was connected with the removal of the ovaries and the tubes. Professor Bumm recommended ligaturing the thrombosed veins, especially in the more chronic cases. He had ligatured the ovarian and hypogastric veins in cases of pyæmia, of which only two ended fatally. He usually made a transperitoneal incision as in that way the veins could be reached more easily than by an extraperitoneal method.

August 14th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Federative International Congress of Anatomy.

FRANCE has been known to claim chemistry as "a French science" and Italy, with perhaps equal justice, to claim anatomy as an Italian one, but (scientific *chauvinisme* aside) Italian interest in anatomical study rests on a historic basis so solid as amply to account for the strength of her representation at the great congress which begins its session to-day at Geneva. This meeting is the first of its kind and it is to be hoped of a long series, its distinctive feature consisting in its not being an international congress on the traditional lines, assembling in one or other national centre, but the collective gathering together of "anatomical societies" which, after preliminary arrangements inspired by a fraternal spirit truly cosmopolitan, have agreed to hold a *réunion* in common and on neutral ground—and all this with no sacrifice of individuality but with each society under its own president working in harmony with the sister societies in the carrying out of one and the same programme. This coöperation, thanks to its collective or "federative" *motif*, will have an advantage unknown to its merely national predecessors—a larger, more varied, in all respects more comprehensive, representation of the "armamentarium anatomicum," an exposition of all the technical resources of research and instruction, including preparations macro- and micro-scopic, illustrating the whole field of anatomy, human and comparative, in embryology, histology, histo-chemistry, &c., the whole resulting in a maximum of demonstration and a minimum of discursive talk. That this programme is not more ambitious than the powers directing it can justify will at once appear in the enumeration of the promoting societies—the Anatomische Gesellschaft of Germany, founded in 1887; the Anatomical Society of Great Britain and Ireland, dating from the same year; the Association of American Anatomists, now in its eighteenth session; L'Association des Anatomistes, founded in 1899; and the Unione Zoologica Italiana, which originated at Pavia in 1900. Italy, I may add, is fortunate in her representative, Professor Romiti of Pisa, a veteran anatomist and zoologist, who can claim the scholastic paternity of a greater number of pupils holding anatomical chairs and lectureships in Italian seats of learning than any living compatriot. He happens to be president for the year of the Unione Zoologica Italiana and certainly no other Italian could have added to the right due by rotation a stronger claim on scientific and professional grounds to represent her at this first meeting of the Federative International Congress of Anatomy.

[1] THE LANCET, August 29th, 1903, p. 637.

The Istituto Antirabbico of Milan.

The Pasteur treatment of hydrophobia can point to few more effective "centres of practice" than the Milanese Antirabic Institute, the report of which for the biennium 1902–03, just out, is as interesting, scientifically and clinically, as any of its predecessors. In 1902 there were 209 persons subjected to the treatment and in the year following 283. Of these, six died at the close of the treatment, two while it was still in progress, and one five days after its termination. The "animali morsicatori" (biting animals) were 492, of which 480 were dogs, eight cats, three oxen, and one man. The institute put in practice three "types of cure," to wit, the normal of 20 days' duration, applied to 437 persons; the "short cure," lasting 15 days and applied to 22 persons; and the "cura intensiva," of 23 days' duration, to which 33 were subjected. (The report incidentally calls attention to the fact that in consequence of experiments made in the institute it was decided, beginning from November, 1903, to modify the traditional method of the Pasteur Institute in Paris—a modification yielding this result: that from that date to April 30th, 1905, no case under treatment at the institute terminated fatally.) As to the sex of the patients 402 were males and 90 females. As regards their age there were 60 cases from one to five years, 105 from six to ten, 79 from 11 to 15, 79 from 16 to 25, 125 from 26 to 50, and 44 from 51 to 80. The "ubicazione" (seat) of the bites was classified as follows: on the face 44 cases with five deaths; at the extremities and exposed parts, 263 with three deaths; and on the non-exposed parts, 183, resulting fatally in one case only. The animals examined at the institute for purposes of experiment and observation were 325. The report proceeds to examine the more "impressionanti" of the fatal cases, well-nigh all them of persons bitten on the face with very extensive lacerations, and records that out of seven the Pasteur treatment proved insufficient in the four gravest cases, but adds that in two of these the "cure," owing to the rapidity with which death supervened, could not develop its action. As to the others, it states that the treatment is efficacious only (1) when the inoculation is not near the nerve centres (which happens when the bites subjected to it are on the face); and (2) when the inoculation of the malady is such as to leave time for the "cure" itself to develop its prophylactic action. A highly interesting section of the report is that with which it concludes, presenting a detailed description of the "protozoa" discovered by Dr. Negri in the nerve centres of hydrophobic animals. This discovery, it claims, admits of a rapid diagnosis being formed, with consequent gain of time and successful results in those cases in which the "Pasteur cure" proved inefficacious because applied too late.

August 6th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Unusual Prolongation of Tabes Dorsalis.

AT a recent meeting of the Society of Practitioners in Vienna Dr. Fuchs showed two patients presenting an unusually long duration of tabes dorsalis. The first was a man, 75 years of age, who, when 16 years old, acquired syphilis. Four years later—namely, 55 years ago, he complained of shooting pain in the legs, *crises gastriques*, and slight disturbance of coördination. 31 years later he sought advice at a hospital on account of atrophy of the optic nerve; he refused to have his pains treated having had them for 30 years. Since then he has remained under medical observation and thus supplies an instance of tabes dorsalis of 55 years' duration. The disease was practically stationary, "prehistoric," as someone said. The other patient, who was a man 60 years of age, began to complain of typical shooting pains 30 years ago without knowing of any specific infection. For the last 22 years he has been under treatment at the hospital, all the symptoms of tabes dorsalis have been present throughout that period, and except variations in the intensity of the pain there is nothing to indicate that the disease is making any progress. These facts seem to show that tabes dorsalis may at least be practically arrested.

Spontaneous Recovery from Progressive Paralysis.

At the same meeting of the above-mentioned society a woman was shown who had a remarkable history. In 1890 she was found to be suffering from typical tabes dorsalis and was treated by massage, hydrotherapy, and iodine. Four years later symptoms of classical progressive paralysis in the expansive form suddenly appeared. Whilst in an asylum a whitlow developed on her right thumb and a deep-seated phlegmon caused sepsis. At the time of operation the phenomena of Argyll-Robertson, Westphal, and Romberg were all present and she had various delusions. When she recovered from the sepsis all the symptoms of paralysis were gone and since that time, 11 years ago, she has remained of sound mind but there is a slow increase in the tabetic symptoms which consist of loss of sensibility of the skin and loss of the tendon reflex in the tendo Achillis. The patient has meanwhile undergone operations for cystitis and pyelonephritis, her left kidney having been extirpated. Septic changes of the blood, perhaps assisted by chronic purulent processes, have therefore been the means of bringing about recovery from paralysis. The different course of psychical and bodily diseases of syphilitic origin is very interesting.

Avulsion of the Deep Flexor Tendon of the Middle Finger.

At a recent monthly meeting of the medical officers of the Vienna garrison Dr. A. Popper showed a man whose hand had been caught in the toothed wheels of an engine. The third phalanx of the right middle finger was torn off and with it there came away the whole tendon of the deep flexor longus for a length of 31 centimetres (12 inches) reckoned from its place of insertion to the seat of injury. The remarkable features of this accident were: (1) the absence of bleeding, which was to be explained by the retraction of the blood-vessels; and (2) the complete restoration of the function of the other fingers although the wound healed by granulation. The time required for healing was five weeks and the only existing sign of the injury was the loss of the phalanx. The treatment consisted in the application of antiseptic dressings and active movements by means of the short flexor, combined with passive movements.

A Nothnagel Scholarship.

The Senate of the University of Vienna has decided to devote £1000 to the purpose of establishing a scholarship in memory of the late Professor Nothnagel. The prize will be awarded to the essay which gives the best answers to medical problems proposed yearly by the Senate. In the case of no essay being deemed worthy of the prize the money will be laid out with a view to encourage original research on diseases of the intestines.

School Hygiene.

The director of the statistical bureau for school affairs has published some very instructive facts concerning the morbidity and mortality of school children. The age period of from 6 to 14 years shows the lowest percentage generally, the susceptibility to pulmonary tuberculosis being also least marked during this period. Tuberculosis was naturally more prevalent among the teaching staff than among the pupils, as the age and occupation of the former gave them an increased susceptibility. The inequality of morbidity and mortality among the children in different districts was due to local variations in connexion with diet, parental care, and promptness of recourse to medical aid. The report therefore recommends systematic medical inspection of schools and an increase in the number of medical officers who ought to be empowered to send children to hospitals if the parents neglect them. In doubtful cases of infectious diseases the child is to be kept away from school. In 1903 there were 97,105 boys and 99,502 girls in the public schools. Of these there was a daily morbidity rate of 3 per cent. for boys and 4½ per cent. for girls. Special classes for feebleminded and mentally deficient children have been opened in five districts and the German method of teaching deafmutes has been universally adopted throughout the Austrian empire.

A Memorial to Professor Finsen.

Funds for the erection of a Finsen memorial have been collected by a committee and a surplus of about £50 remains. It has been decided to use this money to enlarge the laboratory and to increase the surgical appliances in the hospital for lupus.

The Production of Surgical Anæsthesia by Intraspinal Injections.

The intra-dural injection of anæsthetics in the lumbar region for surgical purposes has been carefully studied by Dr. Preindlsberger who described his results at a recent meeting of the Vienna Medical Society. He injected

tropacocaine, which is less toxic than beta eucaine or cocaine. The dose was 0·07 gramme, equal to one and a sixth of a grain, in sterilised water, and with the exception of some degree of headache there were no unpleasant after effects. Nausea or collapse was not observed amongst 345 cases operated upon under this form of anæsthesia. The cases included a great variety of laparotomies, amputations, herniotomies, and other surgical operations on the regions below the level of the umbilicus. The analgesia was complete in more than 70 per cent. of the cases, fairly complete in 15 per cent., and inadequate in 15 per cent. In the last category the operations had to be finished under ether or chloroform, of which, however, only a very small quantity (from 20 to 30 drops) was required to control pain. Some of the patients showed a rise of temperature up to 100° or 102° F. for a day or two, after which it soon fell to normal. The injections are made where lumbar puncture is best effected—namely, between the first and second lumbar vertebræ.

August 14th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Railroad Accidents in the United States.

THE latest accident bulletin issued by the Inter-State Commerce Commission giving the statistics of the railroad accidents which occurred in the United States during the first three months of 1905 shows that during that period 1651 passengers and 2062 employees were injured and 28 passengers and 204 employees were killed as the direct result of railway disasters. Including other causes of injury not immediately due to derailments or collisions the total number of deaths was 909 and of non-fatal casualties 14,937. The total number of accidents was 3108, of which 1787 were collisions. The loss of property to the railway companies alone is estimated at $2,449,242. It is not only the stupendous loss of life and property that gives one pause in considering these figures but also the fact that the number of disasters appears to be increasing from year to year instead of diminishing. This is accounted for by the fact that while the volume of traffic is rapidly growing on all the roads the smaller ones are attempting to carry on their business without double-tracking their lines and installing the expensive signal systems that are essential to the safe operation of the busy modern railroad.

The Warfare against Mosquitoes.

The anti-mosquito propaganda has been carried on with great vigour this year and apparently with effect enough to satisfy the most sceptical. The inhabitants of the New Jersey and Long Island coast towns are reporting an unwonted scarcity of the insects this summer, whereas in previous years the pests have been so troublesome as to render life in these otherwise most attractive summer resorts very uncomfortable. This happy consummation has been effected by diligent destruction of the mosquito larvæ by petroleum, by draining swamps and marshy ground, by thinning the shrubbery in damp localities, by keeping all cisterns, rain-water barrels, &c., screened, and by filling in stagnant pools. During the spring many small streams and creeks were cleaned out and huge quantities of petroleum have been sprayed over the mud-flats at low water. The rural population who at first looked on askance at these measures which seemed to be founded on mere theory have become convinced of their wisdom and are willing to second the efforts of the sanitarians. The insects are unusually scarce, however, even in localities that have not been active in attempts at their extermination and it is supposed that the dryness of the summer so far has rendered conditions less favourable than usual for the development of the larvæ.

A New Hospital Boat for New York.

A craft designed to serve mainly as a hospital transport but in addition equipped for purposes of all-round utility is being built for the city of New York and will soon be completed. Most of the city's contagious disease and detention hospitals are on various neighbouring islands given up to these purposes and the new boat will have eight small wards intended to receive such patients during transit. Each of these is directly accessible from without and they are all constructed of sheet steel so that they may be hermetically closed and fumigated. There will also be a morgue on board and large tanks so that in case of accident to the pipe lines in ordinary use a water-supply may be carried to any of the city's island institutions. The boat will also serve in a less strictly medical capacity, for it is to be provided with powerful pumps intended to be used for fighting fires along the water front and there will be a space left clear on the main deck sufficiently large to accommodate a city fire-engine so that in case of emergency one can be transported to any part of the harbour where it may be needed.

Filtration for New York's Water-supply.

In a recent report just submitted to the mayor the health commissioner of the city of New York urgently recommends the installation of a suitable water filtration plant for the purification of the city's water-supply. Until now the effort has been made to secure safety through the purchase by the municipality of as much territory as possible round about the Croton watershed, which is the source of supply, but it is now recognised that this means of protection is entirely inadequate. It is estimated that a sand filtration plant sufficient for the city's daily consumption of 500,000,000 gallons could be completed within two years at a cost of about $17,000,000.

Typhoid Fever in Chicago.

The customary summer increase in this disease has been more than usually severe and the hospitals contain over a third more cases than a month ago. The data collected show that the proportion of infections contracted outside of the city is steadily rising. Previously to 1900 the proportion of outside cases averaged 20 per cent. but since then it has gradually increased until now it is thought that at least a fourth of the patients acquired the disease in other localities.

To Reform Drunkards.

The grand jury of New Brunswick, New Jersey, has been petitioned to take measures providing that habitual inebriates shall be sent to the State prison for long periods instead of to the county jail. The idea is that in this way they will be given an opportunity to reform and to learn a trade.

Medical Men in Contempt of Court.

The presiding justice of a Washington, District of Columbia, court recently, in addition to a severe rebuke, imposed fines for contempt of court on two physicians who were late in appearing in response to subpœnas. No account was taken of the fact that both were able to show that they could not have presented themselves sooner without neglecting their professional obligations.

A Mother of 25 Children.

A woman who died recently in a Pennsylvania village at the age of 47 years is said to have given birth to 25 children. She was married at 14 and there were only two sets of twins in the 25. 18 children survived and 12 grandchildren are living.

The New United States Pharmacopœia.

The eighth decennial revision of the United States Pharmacopœia has been completed and comes into effect on Sept. 1st, 1905. Among the more notable innovations are several changes in the strengths of tinctures intended to make them conform to the standards recommended at the International Congress on Potent Remedies held at Brussels in 1902. The strength of tincture of aconite has been reduced from 35 per cent. to 10 per cent., and that of tincture of veratrum from 40 per cent. to 10 per cent., while that of tincture of strophanthus has been increased from 5 per cent. to 10 per cent. Several of the more widely used synthetic remedies of definite composition have been admitted and for the first time statements of the average dose of each drug or preparation are appended to the respective descriptions. Numerous changes in terminology have also been made, such, for example, as the coining of the term fluidextractum to replace the older extractum-fluidum. In spite of active attempts made by certain spelling "reformers" to curtail such terms, the final *e* is retained in the names of the alkaloids, the halogen compounds and such words as oxide. The number of articles added to the Pharmacopœia is quite large but fortunately it is exceeded by that of the omissions.

The Yellow Fever Situation.

The yellow fever epidemic in New Orleans has not yet been got under control though the morbidity has been greatly restricted by the active efforts of the sanitarians. On August 8th there had been 565 cases of the disease, with

113 deaths, and new cases are being reported at the rate of from 30 to 50 a day. This is a very encouraging showing, as previous epidemics have spread much more rapidly and it is also gratifying to note that very few cases have been discovered outside the city itself. The fact that some of the health boards of the surrounding states were unwilling to trust entirely to the mosquito theory of transmission of the disease in many cases led to the enforcement of the fear-inspired quarantines of the shot-gun type that worked so much injustice in former years. In consequence there were numerous clashes between the health officers of different regions, but at the petition of the citizens of New Orleans the Federal Government has stepped in and the entire situation is now under the direction of the United States marine hospital service, so that uniformity in quarantine regulations is assured. The efforts of the sanitarians in the infected city are based entirely on the assumption that by screening all patients and destroying all breeding places for the mosquitoes communication of the disease is impossible, so that the epidemic may be regarded as a crucial test of the mosquito theory.

August 10th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Bubonic Plague.

BUBONIC plague is still prevalent at Maryborough, Queensland, and there have been seven deaths, the last being that of a nurse at the General Hospital. An influential deputation, representing merchants, shipping companies, and others, waited on the Premier of Queensland to ask that effective measures should be taken to counteract the effect of the plague restrictions imposed by the New South Wales authorities, which were a serious check on Queensland trade, and urged, if other means failed, that an embargo should be placed on all goods from New South Wales. The Premier, in reply, regretted that the deputation had not waited till Dr. J. Ashburton Thompson, the President of the Board of Health of New South Wales, had reported on the subject. He had made representations to the New South Wales Government and also to the Commonwealth Prime Minister, who considered that the matter was one for the Federal Parliament to deal with in a Federal Quarantine Act. The Premier of Queensland declined to put an embargo on merchandise from New South Wales, saying that to protect the trade of one State against that of another by quarantine was improper. During a recent conference between the Prime Minister of the Commonwealth and the Premier of New South Wales the former raised the question of the restrictions imposed by the New South Wales Board of Health against fodder and other produce from Queensland. He regarded the restrictions as an infringement of the Commonwealth Constitution Act. The Premier of New South Wales denied this view and maintained that a State was free to impose restrictions of the most stringent kind to protect the health of a large city, and observed that the restrictions applied equally to New South Wales ports on the north coast. He believed that an amicable settlement would follow the visit of Dr. Thompson to Brisbane.

The Health of Melbourne.

The officer of health of the city of Melbourne, Dr. J. Jamieson, has furnished his annual report to the city council. It showed that during the year reviewed the total deaths in the city numbered 869, being a considerable reduction on the figures for the previous year, which was a period of exceptionally low mortality. For the three years 1901, 1902, and 1903 the deaths numbered respectively 1075, 1012, and 931. For 1904 the mortality was in the proportion of 12·82 per 1000 of the estimated population, which is considered an exceptionally low rate, the proportion in 1903 having been 13·8. The mortality from epidemic diseases during 1904 was slightly higher than in 1903. The number of births registered in the year, exclusive of those in the Women's Hospital, was 1175, considerably below the average of the last few years. Deducting from the total number of deaths under one year those occurring in the same hospital, the number 98 is obtained, giving the remarkably low death-rate of 83·4 per 1000 births. Last year the rate—105 per 1000—was regarded as unprecedentedly low. The infant mortality rate during each of the four periods of five years each, from 1885 to 1904 inclusive, averaged 194, 152, 156, and 110 respectively. The figures show that there has been through the last five years a steady, if not quite uniform, gain in the saving of infant life and thus some compensation has been obtained for the fall in the birth-rate.

The Adulteration of Food in Melbourne.

Appended to the report of the health officer was a return of analyses made by the city analyst. Of 83 samples of milk subjected to analysis, 13 passed the standard of purity, 47 passed the "limit" allowed and 14 were below the limit in percentage of non-fatty solids, one contained fatty solids equal to only 0·32 per cent., and one was deficient by at least 12 and probably 34 per cent. of its fatty solids. Nine samples were found to contain added water in quantities ranging from 3 to 15 per cent.; 23 were artificially coloured, and two contained boric acid. Of 20 samples of eucalyptus oil submitted three only passed the tests of the British Pharmacopœia. Five samples of lime-juice were examined, of which only one was the genuine article. Of the others one was slightly below the limit and another passed it but contained 42 grains of salicylic acid and 8 grains of sulphurous acid to the imperial gallon.

Pulmonary Tuberculosis in Victoria.

At the last meeting of the Board of Public Health of Victoria the chairman (Dr. Norris) drew attention to the death-rate from pulmonary tuberculosis in the State and its variations in different centres. In the Melbourne metropolitan area, where pulmonary tuberculosis was a notifiable disease, the proportion of deaths had fallen between 1889 and 1904 from 20 to a little over 13 per 10,000. In Bendigo it was still over 22 per 10,000 and in Ballarat over 16 per 10,000, the same as in 1899, and the highest in the State except Bendigo. He moved that the section of the Health Act stipulating that cases of pulmonary tuberculosis must be notified should be enforced at Ballarat and Bendigo to enable the local councils to take more preventive measures, especially by disinfecting infected centres. The motion was carried with the addition that the provision of the Act should also apply to Geelong. It may be explained that Bendigo has the reputation of being a suitable climate for consumption and consequently attracts sufferers from the disease who die there. The authorities are taking action to compel medical practitioners to notify pulmonary tuberculosis. At Prahran recently a medical man was fined for not doing so and the Hawthorn council has resolved "that local medical practitioners be informed that unless cases of pulmonary tuberculosis are in future reported in accordance with the provisions of the Health Act prosecution would ensue."

The Asylums for the Insane in Victoria.

The recently appointed inspector-general of the insane for Victoria, Dr. W. E. Jones, has furnished a report on the condition of the asylums in that State. He says that all the institutions are considerably overcrowded and that much of the existing accommodation is of an extremely unsatisfactory character. Dealing with the cost of administration he says that the weekly cost of the patients has only been 11*s.* 7*d.*, nearly half of which is paid in salaries and wages, leaving the very moderate amount of 6*s.* 2*d.* per week to be spent on the patient's food, clothing, medical comforts and necessaries. It appeared that things were being worked in possibly too economical a manner. He recommended that the Ararat gaol ward should be given up, that Yarra Bend, broadly speaking, should be rebuilt from end to end, that the Sunbury Asylum should be considerably increased in size, that various improvements should be made at Kew, that the whole of the male side at Ballarat should be remodelled, and that extensive alterations should be made at Ararat and Beechworth. Attached to the report is a table of overcrowding, showing that there are 600 patients too many in the asylums. There is also a table of proposed buildings and alterations, involving an estimated expenditure of £245,800. The principal items are £22,000 for building and refitting the receiving house; £54,000 on alterations to Yarra Bend; £21,500 for Kew; £10,400 for a new idiot asylum; £53,000 for Sunbury, including £24,000 for two new infirmary wards and two new epileptic and suicidal wards to accommodate 180 patients; £32,000 for Ballarat, including £10,000 for a new administrative block; £13,000 for Beechworth; and £16,400 for Ararat. Another table shows that Dr. Jones recommends additional appointments involving £4705 in salaries. The Cabinet has considered the report but has not decided what action will be taken. It proposes to set aside £50,000 for asylum needs this year.

A New Wing at the Wentworth Sanatorium.

On June 3rd a new wing was formally opened by the Premier of New South Wales at the Queen Victoria Sanatorium for the treatment of early cases of consumption at Wentworth Falls, New South Wales. The original building, which was opened in 1903, had 20 beds; the additions will give a total of 44 beds, besides eight shelters, and it is estimated that the institution will be capable of treating about 200 patients annually. The cost has been about £22 per annum per bed.

Infectious Diseases Hospital, Melbourne.

Measles is epidemic in Melbourne and suburbs but the infectious diseases hospital will not take in cases of this disease as it provides only for scarlet fever and diphtheria. The Melbourne and other metropolitan hospitals also refuse admission to such cases.—The medical students at the University of Melbourne have written to the committee of the infectious diseases hospital asking for permission to attend the practice of the hospital in their fifth year to observe cases not seen at the other hospitals. The request was referred to the superintendent to make arrangements to meet the desire of the students.

Alleged Manslaughter by a Medical Man; Acquittal.

On June 8th Dr. F. W. Marshall was for the third time tried at the Central Criminal Court, Sydney, on a charge of manslaughter and this time the jury returned a verdict of not guilty. On the two previous occasions the jury could not agree. The medical evidence was the same as at the previous trials.

Defective Vision in Mariners.

The Court of Marine Inquiry of New South Wales found that a recent collision at sea was caused by the defective vision of the master of one of the vessels.

July 4th.

Obituary.

JOHN WILLIAM OGLE, M.D. OXON., F.R.C.P. LOND.,

CONSULTING PHYSICIAN TO ST. GEORGE'S HOSPITAL.

IN our last issue we announced the death of Dr. John William Ogle which occurred on August 8th at the Vicarage, Highgate, the residence of his son. Dr. Ogle was a member of a family well known both at Oxford and at St. George's Hospital, at which institution two other members of the same family were pupils—viz., Dr. William Ogle of Derby, whose death occurred a few weeks ago, and Dr. William Ogle of the Registrar-General's office, while of the younger generation Dr. Cyril Ogle, a son of Dr. John Ogle, is now physician to the hospital. John Ogle was born in the year 1824 and graduated at Trinity College, Oxford. He joined the school of St. George's Hospital in the year 1847, together with Mr. Timothy Holmes, at a time when Prescott Hewett was lecturer in anatomy and Henry Gray was demonstrator of the same subject. The latter was the most active teacher among an exceptionally diligent and intelligent circle of students, among the members of whom were J. H. Bridges and Pearson, then fresh from Oriel and soon to distinguish himself in Australian political life. Ogle was an ardent student of anatomy. He lived for a time in Mr. Hewett's house and was soon appointed to demonstrate anatomy in the school, being also for some time curator of the museum together with Gray. For a time he lectured on anatomy and on Gray's sudden death he remained in charge of the pathological department. During these early years at St. George's Ogle commenced a career which was soon to conduct him to eminence both as a physician and as a hospital teacher. He took the degree of M.D. in 1857 and became a Fellow of the Royal College of Physicians of London in 1855. In 1866 he joined Mr. Timothy Holmes as co-editor of the *St. George's Hospital Reports*, a series which extended to ten volumes, Ogle being co-editor of the first seven of these volumes, but in the year 1874 his place was taken by Dr. W. H. Dickinson. Apart from the intrinsic value of its contents the series of Hospital Reports did no little service in keeping up the *esprit de corps* of the school and in securing the efficiency of the junior departments of the hospital—viz., the registers and the museum—so ably organised and supervised by such men as Edgar Hawkins and Prescott Hewett. Dr. Ogle was a man of wide sympathies in matters outside the medical profession. He was a deeply religious man of the school of the early Tractarians or High Churchmen, with whose leading members, such as Sir R. Inglis, Mr. Gladstone, Keble, and others, he had intimate relations. The last time probably that he attended any gathering at St. George's was when Dr. Temple, Archbishop of Canterbury, an old Oxford friend of his, gave the prizes to the successful students. The late Dean of St. Paul's, Dr. Church, was also one of his sympathising friends. He was also interested in antiquarian matters and was a Fellow of the Society of Antiquaries, and in 1884 he was elected to "Noboly's Club" on the nomination of Mr. G. Richmond, R.A., and Dean Church.

Dr. Ogle soon attained a large practice. He was happily married and but for somewhat infirm health would have seemed to have all that was necessary for felicity. He was elected on to the staff of the hospital as assistant physician in March, 1857, on Dr. Wilson's retirement, and became full physician in May, 1866. But the strain of private and hospital practice proved too much for him and he fell into a condition of melancholia, from which he suffered for many months, and from which he recovered in a very singular manner, for he had somehow contracted typhoid fever, for which his friend Dr. (afterwards Sir) W. Jenner attended him and which seriously threatened his life; but when the danger had left him his mind quite recovered its tone and he remained fit for all the purposes of active life. But he had felt it prudent to resign his hospital appointment in 1876 and was elected consulting physician in May, 1877. For some years Dr. Ogle continued in private practice, but a few years ago he found it time to spare himself such anxiety and labour and went to live at Highgate. His friends were glad to learn that this change had been entirely for his happiness and that he continued to enjoy life in spite of failing strength and the increasing infirmities of old age. Finally, he lost partly the power of articulation, then unconsciousness supervened, and he passed away peacefully and without suffering on August 8th.

Such is a very imperfect record of a life the innocence and virtue of which made everyone who knew him his friend. Of no one could it be more truly said, "He was good if ever good man lived." Ruder health and a more combative temper might have pushed him further forward in the race of life but for this he had no ambition. He had done good service to St. George's and had been faithful in the higher service to which he devoted himself and that was enough for him. "Cui Pudor et Justitia soror, incorrupta Fides nudaque Veritas. Quando ullum inveniet parem?"

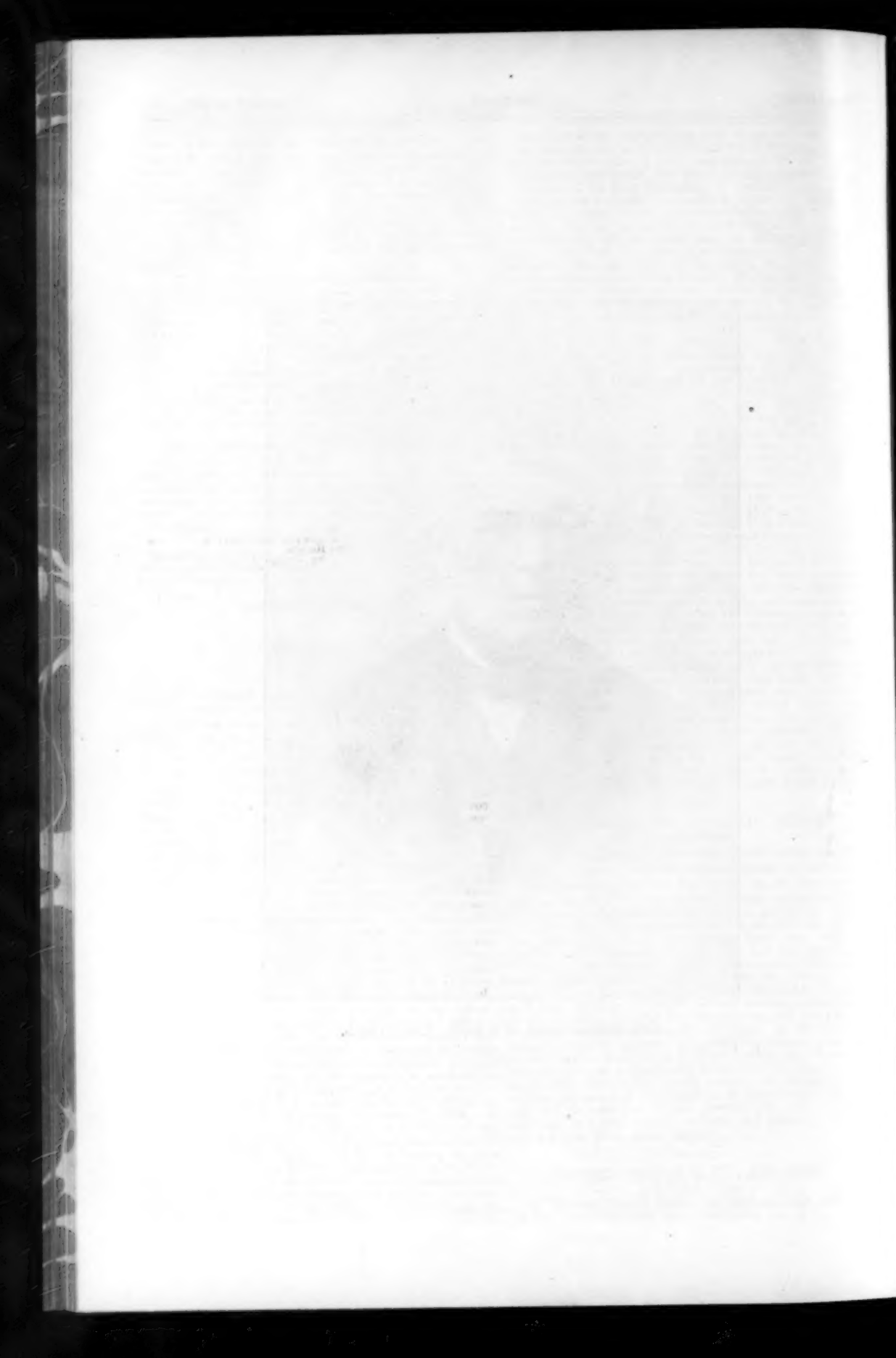
WILLIAM FRAZER, M.D.T.C.D., M.R.C.P., L.R.C.S. IREL.

Dr. William Frazer of Bournemouth died at his residence in Madeira-road on July 26th, after an illness of about three weeks' duration. He was the eldest son of the late Dr. William Frazer of Harcourt-street, Dublin, and received his professional education in the medical school of Trinity College in that city, graduating as M.B. in 1873 and taking the diploma of L.R.C.S. Irel. in the same year. He proceeded to the degree of M.D. in 1878 and was admitted a Member of the Royal College of Physicians of Ireland in 1887. After becoming qualified he was for a time in the service of the Peninsular and Oriental Steamship Company and held the appointment of resident medical officer in the Royal National Hospital for Consumption and Diseases of the Chest at Ventnor in the Isle of Wight. In 1878 he went from Ventnor to Bournemouth, where he became physician to the National Sanatorium for Consumption and Diseases of the Chest, to the Bournemouth Royal Victoria Hospital, and to St. Mary's Home for Invalid Ladies. Dr. Frazer was for several years one of the sidesmen at Holy Trinity Church. He had an extensive private practice and will be deeply mourned by a large circle of friends and patients. He has left a widow, a son, and a daughter.

EDWARD THOMAS BLAKE, M.D. ABERD., M.R.C.S. ENG.

Dr. Edward Thomas Blake, who died on July 31st, was born at Taunton in 1842, being the fourth son of Dr. James

JOHN WILLIAM OGLE, M.D. OXON., F.R.C.P. LOND.



Dore Blake. He was educated at the Independent College, Taunton, and pursued his medical studies at University College, London, becoming a Member of the Royal College of Surgeons of England in 1863 and graduating M.D. at the University of Aberdeen in 1872. He first practised at Wolverhampton and subsequently at Reigate. In 1880 he came to London where he practised largely as a gynæcologist until within a few weeks of his death. Dr. Blake was the author of numerous medical writings and was one of the first in this country to recognise the important part played by sepsis in disease processes; and it was probably because he was somewhat heterodox, especially in the earlier part of his medical career, that he did not receive the ready recognition which the quality of his work and his undoubted talents deserved. His strong point as a physician was treatment and it would be difficult to find anyone more thorough and painstaking in this respect than he was. He was a man of pronounced individuality and of remarkable energy and enthusiasm. His information was encyclopædic and he was a master of detail, which very circumstance perhaps prevented him always from distinguishing the essential from the non-essential. His wide culture, quickness, and versatility made him a brilliant conversationalist, and nothing delighted him more than a long day in the country with a kindred spirit, when he could fully indulge his passion for natural history and folk-lore. He leaves a widow and one son who has already achieved distinction in the world of art.

Medical News.

UNIVERSITY OF LONDON.—At the intermediate examination in medicine held in July the following candidates were successful:—

Alicia Pears Aldous, London (Royal Free Hospital) School of Medicine for Women; Leonard Tilsley Baker, Guy's Hospital; Henry Lewis Barker, St. Mary's Hospital; *Frederick James F. Barrington (scholarship in physiology), University College; Kathleen Baylis, University College, Cardiff; Alfred Bernstein, Victoria University; Lilias Margaret Blackett, London (Royal Free Hospital) School of Medicine for Women; Trevor Laurence Bomford, St. Bartholomew's Hospital; William Francis Bowen, University College; Edward Wrigley Braithwaite, University of Leeds; John Webster Bride, Victoria University; Kate Brown, London (Royal Free Hospital) School of Medicine for Women; Arthur Burrows, London Hospital; Rhoda Hicks Butler, London (Royal Free Hospital) School of Medicine for Women; George Spence Candy, London Hospital; Howard Bernard Carter, Guy's Hospital; Samuel Earle Cathcart, Middlesex Hospital; Walter Chesters, St. Mary's Hospital and University College, Cardiff; James Aitken Clark, St. Thomas's Hospital; Cecil Clarke, University College, Bristol; Meyer Cohen, University College; Stanley William R. Colyer, Charing Cross Hospital; Ernest Marshall Cowell, University College; Winifred Julia Cox, London (Royal Free Hospital) School of Medicine for Women; John Westray Cropper, University of Liverpool and Southern Hospital; Davis Woodcock Daniels, St. Mary's Hospital; Arthur Fiolliott William Denning, Guy's Hospital; Eustace James Carey Dicks, St. Mary's Hospital; Donald Frederick Dobson, University of Leeds; Gladys Margaret C. Dunbar, London (Royal Free Hospital) School of Medicine for Women; Raymond Charles Viner Edsall, Guy's Hospital; Douglas Gordon Evans, London Hospital; Vera Foley, London (Royal Free Hospital) School of Medicine for Women; Harold Sydney Furness, University College; Eric Leigh Fyffe, St. Thomas's Hospital; †Eric Gerald Gauntlett, King's College; *William Gilliatt, Middlesex Hospital; Alexander Edward Gow, St. Bartholomew's Hospital; Thomas John Hallinan, Charing Cross Hospital; John Maximilian Hammond St. Bartholomew's Hospital and University College, Bristol; ‡Clement Hoyle Heppenstall, University of Leeds; Susie Eleanor Hill, London (Royal Free Hospital) School of Medicine for Women; Frederick George Hitch, London Hospital; Maurice James Holgate, St. Bartholomew's Hospital; Henry Holroyd, Middlesex Hospital; Charles Reginald Hoskyn, St. Bartholomew's Hospital; Matilda Hunt, London (Royal Free Hospital) School of Medicine for Women; William Johnson, Guy's Hospital; John Edward Lionel Johnston, St. Mary's Hospital; Robert Henry Hatten Jolly, Charing Cross Hospital; Arthur Rocyn Jones, University College, Cardiff; Rose Fanny Jordan, London (Royal Free Hospital) School of Medicine for Women; Harold Holmes King, St. Bartholomew's Hospital; Elsie Marian Layman, London (Royal Free Hospital) School of Medicine for Women; John Lewis, University College, Cardiff; Edward Leslie Martyn Lobb, Guy's Hospital; Dermot Loughlin, London Hospital; Oswald William McSheehy, St. Thomas's Hospital; Robert Vernon G. Monckton, St. Bartholomew's Hospital; Emily Helen Morris and Florence Muriel Morris, London (Royal Free Hospital) School of Medicine for Women; Austin Threlfall Nankivell, St. Bartholomew's Hospital; Ernest Edwin T. Nuthall, St. Thomas's Hospital; Geoffrey Eugene Oates, St. Mary's Hospital; John George Owen, University College; Walter Henry Palmer and ‡John Parkinson, London Hospital; Herbert Edward Perkins, Guy's Hospital; William Joseph Petty, University College, Cardiff; Hilda Margaret Pollard, London (Royal Free Hospital) School of Medicine for Women; Dan Arthur Powell and Laura Gertrude Powell, University College, Cardiff; Robert Bernard Price, St. Bartholomew's Hospital; Joseph Francis E. Prideaux, University College; Simon Isaac Rabbinowitz, London Hospital; Jeffrey Ramsay, St. Bartholomew's Hospital; Edgar Nelson Ramsbottom, Victoria University; ‡Alfred Richardson, University of Leeds; Arthur M. Marsh Roberts, University of Liverpool; Kenneth Robinson, Victoria University; Hubert Alan Hirst Robson, St. Thomas's Hospital; Alice E. Sanderson, B.Sc., London (Royal Free Hospital School of Medicine for Women); Harry Archibald Sanford, Guy's Hospital; Charles Fox Octavius Sankey, St. Thomas's Hospital; William Scarisbrick, B.Sc., University of Liverpool; Francis Charles Searle, St. Bartholomew's Hospital; Frederick George Sergeant, University College; Shantaram R. Shirgaokar, King's College and Grant Medical College, Bombay; ‡Latimer James Short (scholarship in pharmacology), University College, Bristol; James Thornton Smalley, Guy's Hospital; George Francis Rawdon Smith, University of Liverpool; St. John Alexander M. Tolhurst and Vincent Townrow, Guy's Hospital; Norman Hamilton Walker, St. Bartholomew's Hospital; Enid Margaret Walters, London (Royal Free Hospital) School of Medicine for Women; †Albert James Walton (scholarship in anatomy), London Hospital; †Charles Henry Shorney Webb, Middlesex Hospital; *Henry Whitehead, Victoria University; Margaret Hannah Wild, B.A., London (Royal Free Hospital) School of Medicine for Women; Herbert George Willis, St. Mary's Hospital; Sophia Margaret V. Witts, London (Royal Free Hospital) School of Medicine for Women; William Wallace Wood, London Hospital; and Arthur Lowndes Yates, St. Bartholomew's Hospital.

*Distinguished in Physiology. †Distinguished in Anatomy. ‡Distinguished in Pharmacology.

This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in August the following candidates passed in the subjects indicated:—

Surgery.—H. J. Aldous (Section II.), King's College Hospital; C. W. S. Boggs (Section II.), Leeds; H. A. Browning (Sections I. and II.), Cambridge and St. George's Hospital; and G. M. Seagrove (Section II.), St. Bartholomew's Hospital.

Medicine.—P. D. Addis, University College Hospital; C. W. S. Boggs (Section II.), Leeds; J. H. Harrison (Section II.), Sheffield; F. J. P. Jones (Section I.), Guy's Hospital; E. B. Miles and W. G. O'Malley (Sections I. and II.), London Hospital; W. V. Pegler (Section II.), Leeds; N. A. Stutterheim (Sections I. and II.), Utrecht; and A. Whitby, Dublin.

Forensic Medicine.—E. Moir, Manchester; and N. A. Stutterheim, Utrecht.

Midwifery.—E. Moir, Manchester; A. F. Palmer, Middlesex Hospital; and F. C. H. Powell, King's College Hospital.

The diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: H. J. Aldous, C. W. S. Boggs, H. A. Browning, E. B. Miles, and N. A. Stutterheim.

DONATIONS AND BEQUESTS.—Mr. John Rotherham has by will bequeathed £1000 to the Coventry and Warwickshire Hospital.—Sir Massey Lopes has given £500 Consols to the funded property of the Royal Eye Infirmary, Plymouth.

MEDICAL MAGISTRATES.—Mr. Bernard Roth, F.R.C.S. Eng., has been appointed a justice of the peace for the county of Middlesex.—Mr. A. Wood, M.B., C.M. Edin., has been added to the roll of magistrates for the borough of Southport.

THE interesting series of engraved mezzotint portraits of famous physicians, surgeons, and medical writers formed early in the last century by the well-known antiquarian, T. J. Pettigrew, formerly librarian to the Duke of Sussex, will be sold by Messrs. Knight, Frank, and Rutley at their rooms in Conduit-street, London, W., on August 23rd.

VACANCIES IN RUSSIAN HOSPITALS.—The St. Petersburg authorities are exercised about the shortage of medical men for the town hospitals owing to the requirements for the army. The only capable men for the vacancies are Jews, against whom there are obstacles caused by the regulations. As it is now a purely legal question the town authorities have decided to consult counsel as to whether Jews may be invited to fill the vacancies.

LITERARY INTELLIGENCE.—Messrs. Oliver and Boyd of Edinburgh have in preparation a small volume on "Scottish Sanitary Laws and Principles of Public Health" by Dr. W. J. Brock, medical officer of health of Midlothian. This book is intended for the use of county and borough councillors, medical officers of health, and sanitary inspectors. It will be published next month.—Dr. C. J. Lewis and Mr. J. N. Lewis, Fellow of the Institute of Actuaries, have in the press a work analysing the Scottish births registered in the first year of registration. These are the only birth statistics existing in this country which contain full details as to the duration and fecundity of marriage. M. Kiaer made special reference to the existence of these Scottish

statistics in his recent address on the Fecundity of Marriage to the International Statistical Institute. In this work these statistics will be comprehensively dealt with and interesting deductions will be drawn from the results. The book will be published during the autumn by the same publishers.

ROYAL CORNWALL INFIRMARY, TRURO.—The recently issued annual report of this institution states that 476 in-patients were admitted during 1904, against 392 in 1903. The out-patients numbered 1003, compared with 876 in the previous year. The cost per bed was £54 3*s.* 5*d.*, compared with £58 16*s.* in 1903. The report adds that Sir R. Harvey gave £1000 for the endowment of a bed in the women's ward in memory of Lady Harvey. The financial statement showed that the income amounted to £2113 and a favourable balance of £3 remained.

INFECTIOUS DISEASE AND ELEMENTARY SCHOOLS.—On the suggestion of Dr. E. M. Smith, medical officer of health, the York corporation health committee passed the following resolution on July 31st:—

That this committee having been informed of the discretionary powers now granted to educational authorities by the new Code just issued, with regard to the admission to school of children under the age of five years, hereby express the hope that, in view of the extensive prevalence of infectious diseases in infants' schools in this city during the last few years and on the grounds of the general health of children of tender age, the Education Committee will in future do their utmost to discourage the attendance of children under the age of five years in all the elementary schools in the city.

ATTACK ON A RUSSIAN MEDICAL STAFF.—The *Government Gazette* of Saratov contains an account from the governor of the province of the circumstances of an attack on medical men at Balaschoff on August 3rd, where 2000 people, incensed against the medical staff on account of their having declined to serve in the province, gathered round the hotel in which the medical men were holding a conference. They sang songs and threatened them with lynch law. On the governor's interference the crowd dispersed but when he was about to convoy the medical men, who had taken refuge in the bedrooms and even attics of the hotel, under the protection of Cossacks to the railway station some of the crowd stoned them, the governor himself being wounded on the hand. With great trouble he got his *protégés* clear. After damaging some property the crowd fell upon and beat Dr. Schmeleff and Dr. Nevsoroff whom they found in the street. The report states that the proceedings were unlawful and that the guilty parties will be proceeded against and if the disturbances are repeated they will be repressed with the aid of the soldiers.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At St. Germans (Cornwall) on August 4th Mr. J. Bedford Kerswill, M.R.C.P. Edin., M.R.C.S. Eng., who is leaving the town after practising in the district for the past 40 years, was presented with a silver two-handled tea tray, Queen Anne pattern, weighing over 130 ounces, and a silver urn to match. The tray was suitably inscribed and the arms of Mr. Kerswill were also engraved. He was also the recipient of an illuminated album containing the names of 500 subscribers. The Earl of St. Germans made the presentation on behalf of the subscribers at a public meeting and amongst others present were the Countess of St. Germans, the Countess of Dartrey, Lady Mary Dawson, the Hon. John Eliot, and Canon Westmacott.—At the Hambrook (Gloucestershire) mission room on August 5th the vicar (the Rev. W. Brooke), on behalf of the members of the Hambrook Women's Sick Club, presented Mr. W. F. B. Eadon, L.R.C.P., L.R.C.S. Edin., with a mahogany revolving book stand having a silver plate suitably inscribed in recognition of his services as lodge surgeon.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 9TH.

Royal Commission on Tuberculosis.

Mr. REGINALD LUCAS asked the President of the Local Government Board when it was probable that the work of the Royal Commission on Tuberculosis would be completed and a final report presented.—Mr. GERALD BALFOUR replied: It is not possible to say at present when the final report of the Royal Commission will be issued but I understand that the Commission hopes to make an interim report towards the end of the present year.

Arsenical Poisoning.

Sir CUTHBERT QUILTER asked the President of the Local Government Board whether, with a view to giving effect to the recommendations of the Royal Commission on Arsenical Poisoning, the arrangements foreshadowed in his predecessor's statement had now been effected; whether the special inspector and assistant inspector, for whose expenses provision was made in the estimates this year, had been appointed; and, if so, what was the precise nature of the duties allotted to them?—Mr. GERALD BALFOUR answered: An inspector has been appointed and arrangements are being proceeded with as to an assistant inspector. It is the duty of the inspector to advise the Local Government Board as to the administration of the Sale of Food and Drugs Acts and similar Acts, to deal with matters relating to the purity and adulteration of food which are brought to the Board's notice by public analysts, medical officers of health and others, to obtain information upon special questions relating to the purity and adulteration of food and the use of deleterious substances therein, and to make suitable inquiries and investigations for this purpose. The inspector will make a report, which will be included in the annual report of the Board's medical officer, under whose direction he will act.

THURSDAY, AUGUST 10TH.

Sterilised Fluids.

Sir HENRY KIMBER asked the Secretary of State for War whether, in accordance with the recommendation of the Advisory Medical Board that all fluids employed as drinks at manœuvres, on service abroad, and on active service should be sterilised by heat, suitable apparatus and equipment for this purpose had been issued to the whole of the British troops in India and South Africa for service in the field and at manœuvres; whether the service of such sterilised fluids had been intrusted to specially trained men, having no other duties, in each unit, as recommended by the Commission on Dysentery and Enteric Fever appointed by the Secretary of State for War, August, 1900; whether such specially trained men were placed under the direct supervision and responsibility of officers of each unit; and whether the regulations revised in the direction of devolving responsibility upon non-medical officers in the supervision of sanitary services in barracks and camps had been issued.—Mr. ARNOLD-FORSTER answered: My honourable friend is mistaken in supposing that the Advisory Board made such a sweeping recommendation as that stated in the question. Trials were recommended and these have been made, both on service and at manœuvres; further investigations are still in progress. Heat sterilisation is being largely carried out at various places abroad, including India and South Africa. The supervision of water-supplies and methods of water sterilisation, where required, are in the hands of the local authorities and sanitary officers have been appointed at home and abroad, among whose special duties are the periodical examination of the drinking water-supplies and the diffusion of knowledge of practical sanitary procedure among officers and men. The regulations referred to are contained in the provisional issue of Combined Training, Part VII., Section 157, promulgated with Army Orders of March, 1903.

Vaccination Defaulters at Derby.

Sir THOMAS ROE asked the Secretary of State for the Home Department whether his attention had been drawn to the fact that distraint warrants were about to be enforced against some 50 vaccination defaulters at Derby, out of more than 20,000 who were liable to the penalty for non-vaccination; and whether he would explain why Derby had been selected for the enforcement of penalties under the Vaccination Acts whilst in other large towns, where the vaccination default was much greater, such measures were not resorted to.—Mr. AKERS-DOUGLAS replied: My attention was called by the Local Government Board to the fact that no attempt was being made by the Derby police to enforce the orders of the magistrates in vaccination cases and I have been for some time in communication with the Derby watch committee on the subject. I am glad to learn that an effort is now to be made to carry out the law. I have no information as to the number of defaulters in Derby who have not been prosecuted but if the number suggested by the honourable Member is even approximately accurate it points strongly to the evil which results from the failure to enforce the law. I am in communication with the watch committee of another town on the same subject but I know of no other large towns where the police have so entirely failed to enforce the orders of the justices as they have at Derby.

Dogs for Vivisection.

Mr. ELLIS GRIFFITH asked the Secretary of State for the Home Department whether his attention had been called to the fact that dogs were bred specially for the purpose of vivisection at the Brockwell Hall and other farm laboratories; and whether he would cause a return to be made of the places at which dogs were being specially bred for this purpose, the laboratories at which experiments were performed on them, and the nature and purposes of such experiments.—Mr. AKERS-DOUGLAS answered: I have made inquiries and I understand that dogs have been bred at Brockwell Hall and that some of the dogs so bred have been used for experiments in the laboratories. I do not think it is of material importance whether dogs which are used for purposes of experiment are bred on the premises or imported from elsewhere and as it is not a matter over which I have any control I fear I cannot undertake to furnish the return suggested by the honourable Member.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.
Les Actualités Médicales. Moustiques et Fièvre Jaune. Par A. Chantemesse, Professeur d'Hygiène à la Faculté de Médecine de Paris, Inspecteur général des Services Sanitaires, et Frédéric Borel, Laureat de l'Institut, Directeur de la 2e Circonscription Sanitaire Maritime. Price Fr. 1.50.

BLACK, ADAM AND CHARLES, Soho-square, W.
The English Lakes. Painted by A. Heaton Cooper. Described by Wm. T. Palmer. Price 20*s.* net.

F. A. DAVIS COMPANY, Philadelphia.

Color-Vision and Color-Blindness. A Practical Manual for Railroad Surgeons. By J. Ellis Jennings, M.D. (Univ. Penns.), formerly Clinical Assistant, Royal London Ophthalmic Hospital; Professor of Diseases of the Eye, Medical Department, Barnes University, St. Louis. Second edition, thoroughly revised. Price, extra cloth, $1.00 net.

FISCHER, GUSTAV, Jena.

Die Bakteriologie des Blutes bei Infektionskrankheiten. Von Dr. med. Canon, Berlin. Price M.5; geb., M.6.

HARRISON AND SONS, St. Martin's-lane, W.C.

Reports of the Commission appointed by the Admiralty, the War Office, and the Civil Government of Malta, for the Investigation of Mediterranean Fever, under the Supervision of an Advisory Committee of the Royal Society. Part III. Price 2s. 6d.

KARGER, S., Karlstrasse, 15, Berlin.

Grundriss der Semiotik des Harns. Für praktische Aerzte. Von Dr. St. Serkowski, Vorsteher des städtischen, chemisch-bakteriologischen Labatoriums in Lodz. Price M.1.50.

Zur Kroenleinschen Operation. Von Dr. Josef Heibeon, Privatdozent an der Universität und I. Assistent der Universitäts-Augenklinik in Berlin. Aus der Universitäts-Augenklinik in Berlin. (Direktor: Geheimrat Prof. Dr. v. Michel.) Price M.3.50.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ACTON, H. W., M.R.C.S., L.R.C.P., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

BARCLAY, WILLIAM BOWIE, L.R.C.P., L.R.C.S., L.M. Edin., D.P.H. Vict., has been appointed Medical Officer of Health of Weymouth.

BOND, FRANK FOURACRE, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer to the Trowbridge (Wilts) and District Isolation Hospital.

CUNLIFFE, THOMAS VARLEY, M.D., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Assistant Surgeon to the Oldham Infirmary.

GRANDIN, LILIAN, L.R.C.P. & S. Edin., has been appointed Medical Missionary in connexion with the new hospital at Chao Tong, China.

KELLEHER, T. A., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Waterford District of the county of Waterford.

KELLY, W., M.B., C.M. Aberd., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MASON, A., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Deal District of the county of Kent.

REES, W. H., M.B., F.R.C.S., has been appointed Registrar to the Bolingbroke Hospital, Wandsworth Common, S.W.

ROLSTON, JOHN R., M.R.C.S. Eng., has been appointed Honorary Consulting Ophthalmic Surgeon to the Cottage Hospital, Liskeard, and also to the Royal Dockyard Female Orphanage Asylum, Devonport.

WARD, BERNARD J., F.R.C.S. Eng., has been appointed House Surgeon to St. Peter's Hospital for Stone and Urinary Diseases, Covent Garden, London, W.C.

WILSON, A. R., M.D. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Wallasey District of the county of Cheshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH, ROYAL UNITED HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BEDFORD, BOROUGH OF.—Medical Officer of Health. Salary £250 per annum.

BEVERLEY, EAST RIDING LUNATIC ASYLUM.—Second Assistant Medical Officer. Salary £150 per annum, with board, apartments, and washing.

BRADFORD ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

BRIGHTON THROAT AND EAR HOSPITAL, Church-street, Queen's-road.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

CAIRO, KASR-EL-AINY HOSPITAL.—Resident Medical Officer. Salary £250 (Egyptian), with light and quarters.

CARDIFF INFIRMARY.—Assistant House Surgeon for six months, renewable. Salary at rate of £60 per annum, with board, washing, and apartments.

CHEETHAM, MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—Resident Medical Officer. Salary £80 per annum, with board, apartments, attendance, &c.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Junior House Surgeon. Salary £50 a year, with board, apartments, and laundress.

COLCHESTER, ESSEX AND COLCHESTER GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon for six months, renewable. Salary £60 per annum, with rooms, board, washing, and attendance.

DARENTH, NEAR DARTFORD, METROPOLITAN ASYLUMS BOARD ASYLUM.—Second and Third Assistant Medical Officers, unmarried. Salaries respectively £180 and £150 per annum, with rations, lodging, attendance, and washing.

DUDLEY, THE GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon for six months. Honorarium of £25, with board, residence, &c.

GLASGOW, ROYAL HOSPITAL FOR SICK CHILDREN.—Resident House Surgeon. Salary at rate of £50 per annum, with board and laundry. Also Assistant at Dispensary for six months. Salary at rate of £100 per annum.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale.—Resident Medical Officer for six months. Salary at rate of £50 a year, with board and washing.

ISLE OF MAN, NOBLE'S HOSPITAL AND DISPENSARY, Douglas.—Resident House Surgeon, unmarried. Salary £90 a year, with board and washing.

LEITH HOSPITAL.—House Surgeon, Assistant House Surgeon, Assistant House Physician, and Physician in the Out-door Department, all for six months.

LIVERPOOL, CITY OF, INFECTIOUS DISEASES HOSPITALS.—Assistant Resident Medical Officer, unmarried. Salary £120 per annum, with board, washing, and lodging.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum, with board and residence.

MAIDSTONE, KENT COUNTY OPHTHALMIC HOSPITAL.—House Surgeon. Salary £100, with board and residence.

OXFORD, RADCLIFFE INFIRMARY.—House Physician, also Junior House Surgeon, both for six months and unmarried. Salary of former at rate of £80 and of latter at rate of £40 per annum. Also Honorary Assistant Physician and Medical Registrar.

PARISH OF ST. MARYLEBONE.—District Medical Officer. Salary £90 per annum.

PECKHAM HOUSE ASYLUM, London, S.E.—Senior Assistant Medical Officer. Salary £200 per annum.

PENDLEBURY, MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried, for six months, eligible for election as Senior Medical Officer for another six months. Salary at rate of £80 a year when Junior, and £100 a year as Senior, with board and lodging.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, London, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

STRAITS SETTLEMENTS, MUNICIPALITY OF THE TOWN OF SINGAPORE.—Assistant Municipal Health Officer. Salary £400 per annum, rising to £450.

TYNEMOUTH, COUNTY BOROUGH OF.—Medical Officer of Health. Salary £300 per annum, increasing to £400.

UNIVERSITY COLLEGE, London.—Special Officer in charge of the Ear and Throat Department.

WALLINGFORD, BERKSHIRE ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £140, with board, apartments, attendance, &c.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

YORK CITY LUNATIC ASYLUM.—Resident Medical Officer. Salary £400 per annum, with house, coal, laundry, &c.

THE Chief Inspector of Factories, Home Office, S.W., gives notice o vacancies as Certifying Surgeons under the Factory and Workshop Act at Stirling, in the county of Stirling; and at Aldershot, in the county of Hants.

Births, Marriages, and Deaths.

BIRTHS.

BOWER.—On August 13th, at Elton House, Gloucester, the wife of E. Dykes Bower, M.D., of a son.

FENWICK.—On August 10th, at Harley-street, W., the wife of W. Soltau Fenwick, M.D., of a son.

TYRRELL.—On August 9th, at Whitehall-court, S.W., the wife of Lieutenant-Colonel C. R. Tyrrell, R.A.M.C., of a son.

WILLIAMS.—On August 10th, at Abbotsfield, Slough, Bucks, the wife of Ralph Paul Williams, M.D. Lond., of a son.

DEATH.

KILROY.—On August 13th, at Paramé, France, Philip le Feuvre Kilroy, Lieut.-Col. R.A.M.C., of Eastfield, Ryde, I.W., aged 61 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHAULMOOGRA OIL AND SYPHILIS.

To the Editors of THE LANCET.

SIRS,—With reference to the query in THE LANCET of August 12th by Dr. Jos. Fr. von Crippa, regarding the therapeutic properties, &c., of chaulmoogra oil, I may say that throughout a protracted residence in India, during which much attention was devoted by me to indigenous drugs, I never heard of this oil being used by European or native practitioners in the treatment of syphilis; but it had considerable repute as an internal or external remedy in leprosy and skin diseases. In the year 1856 there appeared in the *Indian Annals of Medical Science* an article regarding its use in the treatment of secondary syphilis but this notice does not appear to have led to any practical results. Further remarks regarding the medicinal effects of chaulmoogra, as used in the East, &c., will be found in an article by Dr. F. Mouat in the *Indian Annals of Medical Science* for 1854 and in a paper by Dr. Hobson in the *Edinburgh Medical Journal* for 1855. "The Pharmacopœia of India" (1868), p. 440; "Bengal Dispensatory" (1842), p. 206; and "Pharmacographia Indica" (1890), vol. i., p. 142, may also be consulted.

I am, Sirs, yours faithfully,

GEORGE BIDIE, C.I.E.,
August 12th, 1905. Surgeon-General.

To the Editors of THE LANCET.

SIRS,—In reply to the inquiry in THE LANCET of August 12th, 1905, p. 408, as to the therapeutic action, active principle, and general characters of oleum gynocardiæ (chaulmoogra oil), especially in the treatment of syphilis, I should like to say that I have searched in vain for details of the use of chaulmoogra oil in syphilis. Martindale's "Extra Pharmacopœia" mentions secondary syphilis among other diseases for the treatment of which it is useful and gives several references to medical literature, one of which may relate to its use in syphilis. There are one or two points about chaulmoogra oil which are worthy of notice. The oil has been described in text-books as the product of the seeds of *Gynocardia odorata*, but as a matter of fact its origin is doubtful. According to Mr. E. M. Holmes, curator of the Museum of the Pharmaceutical Society (*Pharmaceutical Journal*, [4], x., p. 522), three varieties of seeds pass under the name chaulmoogra. These are *Gynocardia odorata*, R.Br., genuine chaulmoogra seeds growing in Eastern India; *Hydnocarpus anthelmintica*, Pierre, a Siamese product; and *H. wightiana*, Blume, a native of Western India, the oil of which is employed on the Malabar coast in cutaneous diseases and ophthalmia and for ulcers on the feet. It has been taken internally for leprosy, syphilis, and rheumatism, but, like chaulmoogra oil, acts occasionally as a gastro-intestinal irritant (Watt, Dictionary of Economic Products of India, vol. iv., p. 309). The drug finds a place in the Pharmacopœia of India and much of the published literature refers to its value in the treatment of cutaneous diseases, particularly leprosy. The ointment appears to be the most valued preparation of chaulmoogra oil, but it is given internally in the form of capsules or a milk emulsion in doses of from 2 to 15 grains. Saline aperients should be given at the same time. The therapeutic value of the plants which yield the oil would appear to be similar, but more definite information is required on this point. The most recent work on chaulmoogra oil is that of Dr. F. B. Power and Mr. F. H. Gornall (Proceedings of the Chemical Society, 20, 135) who differ from other authorities in almost all essential points. Thus they state that the plant which yields the chaulmoogra oil of commerce is *Taraktogenos Kurzii* (King), a native of Burma, and not *Gynocardia odorata*, R.Br. The seeds of *Taraktogenos Kurzii* contain a hydrolytic enzyme and an unstable cyanogen compound which react to form hydrogen cyanide. All previous workers have ascribed the therapeutic activity of the drug to "gynocardic acid," but Dr. Power and Mr. Gornall consider this substance to be a mixture of several fatty acids, one of which they have isolated and named chaulmoogric acid. It would appear, therefore, that the text-books are uniformly wrong in describing the source and active principle of chaulmoogra oil. The drug has so great a reputation in India that a comparative pharmacological investigation of the products of the various plants yielding commercial chaulmoogra oil seems to be desirable. The results of Dr. Power and Mr. Gornall require to be supplemented by a comparative pharmacological investigation of the so-called active principle "gynocardic acid" and chaulmoogric acid.—I am, Sirs, yours faithfully,

SEARCHLIGHT.

A PROBLEM IN ACOUSTICS.

To the Editors of THE LANCET.

SIRS,—I shall be much gratified if any of your readers can explain the *cause* of the following phenomenon. I have asked several aurists but not one of them could give me a definite reply. The majority confessed their ignorance. One said that my auditory canal must be abnormally sensitive. Another said it might be a "muscle tone" but as he had forgotten what exactly was a muscle tone we "got no forrader." If I advance my jaw to its fullest extent and bite upon the upper lip I get a tinnitus in both ears. The sound is like the cry of a bat, an extremely high note, which I have copied exactly on a Galton's whistle. If I keep the jaw fixed in the above position the sound gradually lessens and dies away in 20 seconds. The same thing obtains, but to a less extent, if I open widely my mouth when eating. These motions, doubtless, put pressure upon the Eustachian tubes and I can conceive that an impulse may be imparted to the contained air; but although I know little about the ear I do know something of acoustics and I cannot see how such an impulse can give rise to a musical note lasting 20 seconds.—I am, Sirs, yours faithfully,

August 14th, 1905. A. P. S.

*** A muscle tone is the tone produced by the contraction of a muscle and is, we believe, one of 16 vibrations a second. But the note of a bat is almost the highest audible sound. Possibly the sound heard by our correspondent is caused by the air passing through a small perforation in the membrana tympani. Perhaps some of our readers can suggest another explanation.—ED. L.

THE TREATMENT OF MEDICAL MEN AT HARROGATE BATHS.

To the Editors of THE LANCET.

SIRS,—Some days ago on arrival here I went to the manager's office at the Royal Baths to ask for the usual pass to get the waters and book of six free tickets for baths, producing the cover of my last year's pass. I was curtly informed by the present manager that as I was not in active private practice and that expenses were being curtailed I could not be granted them, I suppose on the principle that new brooms sweep clean. I pointed out that his predecessor last year had given them without any demur and that no objection had ever been made to my getting free passes at any of the other English or continental spas that I had been to; however, he was obdurate. I think such action commercially impolitic and ungrateful to our profession and one cannot wonder at the resort of so many members to foreign spas where they are treated with every consideration. I presume also that the fact of my having served my country for over 27 years abroad with some distinction would in these days militate against any such trifling concession. I merely draw attention to it to save any others of my *confrères* exposing themselves to a similar rebuff.

I am, Sirs, yours faithfully,

M.A., M.D., M.R.C.S. ENG.
August 7th, 1905. (Lieut.-Col. (Retired), I.M. Service.)

A SCREW-CORKED STOPPER AND BOTTLE.

APART from the use of antimony sulphide in the red rubber ring, rubber itself is likely to impart a disagreeable taste to liquids with which it comes into contact. This may be avoided, of course, by substituting a cork ring but the material must be of a selected kind in order that it may form an air-tight joint when the stopper is screwed down. We were at first sceptical that cork could be successfully employed in this way owing to the irregularities in its structure. By submitting, however, the cork to a series of pressure trials in the first instance, and by adopting a properly constructed neck on the bottle, we find that Messrs. Margett and Mitchell of 47, Tooley-street, London, S.E., have produced a satisfactory screw stopper with a cork ring. We tested it by placing in the bottle some water under slight pressure of carbonic acid gas. After the lapse of several weeks the water was perfectly brisk and sparkling, so that there could not have been any serious leakage. Nor had the taste of the water deteriorated. For preserving aerated beverages we may conclude that cork is superior to rubber owing to the fact that the latter material, though probably forming a more secure joint, has a tendency to taint the liquid.

PREMATURE BALDNESS.

To the Editors of THE LANCET.

SIRS,—Could any of your readers tell me whether they have known any internal treatment of any avail for premature loss of hair? I know that in text-books on the subject our dermatologists can recommend nothing except the giving of a drug to improve the tone of the system, if such need exists, or to alter any constitutional tendency that a patient might show. In the case of an individual who seems in perfect health is there anything else one can do besides applying stimulating liniments? I have no faith in any internal treatment, but thought that some other medical man might be able to give me a wrinkle on the subject.

I am, Sirs, yours faithfully,

Halton Chambers, King-street, W.C. C. STANFORD READ.

"INFAMOUS CONDUCT."

To the Editors of THE LANCET.

SIRS,—As considerable haziness exists amongst junior practitioners as to what constitutes "infamous conduct" in a professional sense, it would be very acceptable to many if the registrar of the General Medical Council or some other expert would define and tabulate, especially noting what constitutes sufficient grounds for removal from the Register. I am, Sirs, yours faithfully,

August 15th, 1905. INQUIRER.

Mr. L. E. Laurie.—Our correspondent's idea is not a bad one, but there are already many bottles for poisons either made of a particular shape or with some particular kind of stopper which should prevent mistakes. Perhaps the commonest cause of poisoning is when careless

people put poison, as carbolic acid, into gingerbeer bottles or some other kind of bottle which has held a harmless material previously.

Holiday.—In the absence of any provision with regard to holidays in the usual agreement with an assistant it is customary for the principal to allow his assistant a holiday of about two weeks and if any help is required during his absence it should be paid for by the principal. The salary would, of course, be paid to the assistant just the same during absence.

Mr. L. Broughton.—Clearly there will be variations.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.).

TUESDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (23rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M., National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.).

THURSDAY (24th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (1 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.).

FRIDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (26th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (21st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—3 P.M. Mr. Paget: Surgical Cases in the Wards.

TUESDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Robinson: On Gynæcology.

WEDNESDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—4.15 P.M. Dr. Russell: Medical Cases.

THURSDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Davis: Tonsillitis and its Treatment.

FRIDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Lecture:—Mr. Paget: Surgical Cases.

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1905, which was completed with the issue of June 24th, and the Title-page to the Volume, were given in THE LANCET of July 1st.

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METEOROLOGICAL READINGS.

(Taken daily at noon by Steward's Instruments.)

THE LANCET Office, August 17th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 11	30·01	N.W.	0·24	123	69	54	56	60	Cloudy
,, 12	30·25	S.W.	...	113	73	53	56	60	Fine
,, 13	30·29	S.W.	...	113	70	57	59	63	Cloudy
,, 14	30·18	S.E.	...	120	78	58	59	65	Fine
,, 15	30·07	E.	...	116	76	57	60	65	Cloudy
,, 16	30·00	E.	...	107	71	60	60	64	Cloudy
,, 17	30·11	E.	...	125	70	56	57	61	Fine

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